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NOVEMBER-DECEMBER, 1959

VOL. 13, NO. 6

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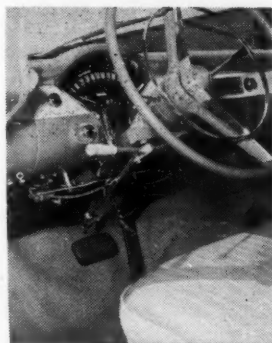
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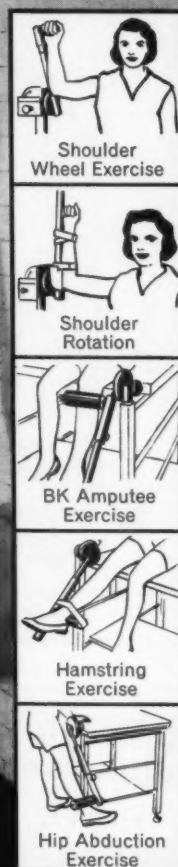
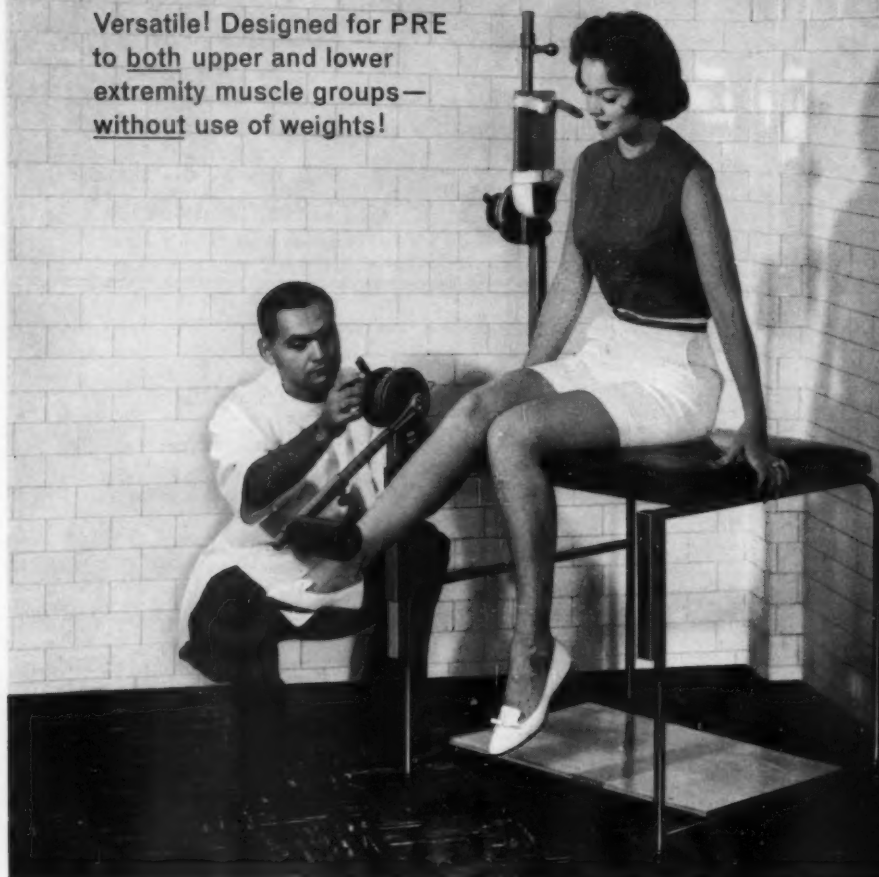
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# THE CHALLENGE OF GERIATRICS: SOME CAUSES, SOME REMEDIES

MANFRED R. M. BLASHY, M.D.\*

## CAUSES OF THE GERIATRIC CHALLENGE

It has recently been stated that "we as a democratic society are committed to care for our people . . . until they die. This is perhaps the greatest challenge facing . . . society . . . today" (1). The reasons for this are by no means only medical, but rather a composite result of a great variety of factors in human endeavor and development of the past 150 years. Geriatrics has perhaps become a challenge of such magnitude because of the profound changes in our way of life affecting, as we shall see, ethics, culture, economy, social conditions, sciences including medicine—that is, the entire fabric of Western civilization, its European variety as well as its American counterpart (2).

When considering a problem of such a broad-tapestried background predominantly interwoven with socio-economic conditions, there is one fundamental fact which claims attention first and above all others. It is the explosive growth of the population of the earth during the past century or so. In 1798, the English economist Thomas Malthus (3) discovered that a given population was growing in geometrical ratio, whereas the providing of foodstuffs was growing only in arithmetical ratio. This caused him to take a dim view of the future of the human race since it appeared mathematically predictable when the population increase would outstrip food production and lead to the greatest hunger catastrophe imaginable. Malthus had underrated the colonizing and organizing powers of the Europeans including ironically enough, those of his own country which rose to the rank of the first world power during the 19th Century. He also could not foresee the revolution in science and industry which helped prove his predictions wrong and led to his discredit. His discovery of the geometrical population growth however, has remained correct, and it might be well worth our while to pay more attention again to his writing today (4).

It was over 100 years later that the German economist Werner Sombart (5) called attention to the fact that the population of Europe had increased from 180 to 460 millions between 1800 and 1914. The population of the United States increased approxi-

mately 100 millions during the same period (6); and the population of the world at large shows the following trend:

A.D. 1800 = 1,000,000,000
1920 = 2,000,000,000
1959 = 2,800,000,000
2000 = 6,000,000,000 plus! (7)

The second significant fact is the increasing velocity with which this population "explodes" upon the earth. The famous Spanish sociologist Ortega y Gasset (6) has shown that the population of Europe remained stationary for approximately 12 centuries, but has been growing over two and one-half times since 1800. The figures for the world at large just quoted seem to confirm this "dizzy rapidity," as Ortega calls it. Even though the geriatric population is presently only around 10% of the total, it must be remembered that it grows still faster than the population at large. Palfi has pointed to this quite recently: "Since 1900 the population of the U.S. has doubled, but the number of persons 45 to 64 years of age has tripled; the number of people 65 and older has more than quadrupled" (8). Thus, it should certainly not surprise anyone when the geriatric problem becomes a challenge simply by the weight of sheer numbers.

The third fact, a direct consequence of the other two, are changes in attitudes and values due to the creation of a mass society and of "mass man." They are so profound and far-reaching that more will have to be said about them later on.

Apart from the population explosion, the problem becomes several times confounded when we consider facts inherent in another staggering development, the Industrial Revolution of the past century. This has led among other things to four significant conditions which have a direct bearing on geriatrics. They are as follows:

1. The change from a rural to an urban society (9). In 1900, there was 50% of our population living on farms. In 1958, this had dwindled to 20%. The estimate for 1975 is less than 10% provided that the trend remains the same. However this may be, the figures do indicate a mass movement of 30% of the population in less than 60 years.
2. The increasing mobility of the American family and the propensity of people in general to move,

\*Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Center, Temple, Texas.

especially during and after World War II. Another example of a mass movement comes to mind here, namely the development of "Suburbia." Communities which were dreaming villages a decade ago, are now becoming cities on the periphery of the "big city" with their express highways and their very epitome, the huge civic "plaza" containing establishments of business, entertainment and the fantastic supermarkets.

Other people are under obligation to the government, especially the armed forces. Thousands of families are moving to and from the four corners of the world. This is today commonplace. Industrial companies are moving entire plants across the country for many reasons. The offer to their employees to move is usually accepted by many—the family of course follows.

The significant consequence in terms of geriatrics is the disappearance of the "three-generation" farmhouse. The senior citizen could always live there, "putter around the house" making himself useful. But in a two-bedroom city flat or in many of those suburban "misdevelopments," there is no room for him whether he be disabled or not.

3. The shift from a predominantly male working force to an increasingly female one (9) which is expressed in the following figures: in 1930, females comprised 18% of the total working force; in 1955, this number had risen to 36%, a relative increase of 100% within 15 years.

As to geriatrics, the complication here is the fact that the woman of the shrunken house is away from 8:00 AM to 5:00 PM having to leave the family member with a crippling disability to his own devices for eight to ten or more hours per day. Therefore, this person has at least to be capable of complete self care (A.D.L.) and locomotion either by wheelchair or under his own power. We are well aware of this since many a patient could not be returned to his home—the familiar, trusted surroundings where he ideally should be—because of the inability of such performance.

4. The "Curse of the Installment Plan". By this I mean the overtaxing of the family budget with "easy" down-payments, so that there is neither cash nor other resource money left for the emergency of uncle Albert's stroke and his unexpected hospitalization for a long period of time. The necessity of high production rates, the high-pressure sales technique and the seduction psychology of the "adman" reigning supreme—these are some of the dynamics involved in a mass society and its mass economy system.

How many times had I to look at the frowning forehead of son or daughter of a veteran when they in pretentious concern would give priority to the new washing machine over their own father! Maybe they had to—on account of an overtaxed budget.

This observation leads from the socio-economic conditions to the psychological dynamics of the new mass society and the changes within new "mass man," his ethics, values, attitudes and his interrelationships with others of his kind and with Government or *vice versa*. It should be stressed that a consideration of this complex situation in detail would go beyond the framework of this paper; but since the senior citizen is our topic and these factors are of great moment in this context, they have at least to be touched upon.

Experience regrettably reveals an increasing casuistry of Wrong with a corresponding rise of casualties on the road to rehabilitation. Callousness, disinterest, non-concern triumph; compassion, love, even pity disappear. The list of truly devoted relatives or friends seems to be growing shorter every year. (This in spite of the fact that I have never requested anyone of them to take a patient home who was not capable of locomotion and selfcare. I think this should be emphasized.)

Why then should this be so? I shall follow Ortega y Gasset (6) in briefly sketching the changes and conditions which produced the "spoiled child of the Age of Science." According to him, this is the true Revolt of the Masses.

The ordinary man of the past, Ortega claims, was taught daily the limitations of his existence. Life was drudgery. People were oppressed. Hard work was the never ending fate. Catastrophes were frequent. Hunger, pestilence and wars were a common experience. "In the sweat of thy face shalt thou eat bread" was very literally true. This existence, however, led to the survival of the fittest and produced hardy human specimens since it taught discipline, humility, severe work habits and stern restrictions of desires among other virtues. Most important, it showed daily that there was a fundamental relation: "Here I end; and here begins another more powerful than I am."

This constant awareness of the "other more powerful," enhanced by the ruler and emphasized by the Church, had become what Ortega calls "a fence around the inner jungle of primitive man." It was certainly inspired and maintained by both secular and ecclesiastic authority.

Today, this has become completely different. Due to his political emancipation since Rousseau and Thomas Paine and his well-being thanks to science and technology, "mass man" is breaking down that



fence. He acknowledges rarely any restrictions—in fact he usually resents them—in the pursuit of his so-called happiness which, in his concept, consists of faster automobiles, thicker steaks, cheaper whiskey, more females and longer weekends.

By the same token, he thinks little of responsibilities or obligations in terms of ethics. Mass man is not interested in what Ortega calls "the noble life" of self-discipline, effort and idealism, but only in "the common life" of self-contented inertia, materialism and "abandonment to his own self." Even though the connotations, as far as our country is concerned, vary in slant or detail, it seems that we are dealing with traits possibly common to both European and American. For example, when Theodore Roosevelt said: "I wish to preach not the doctrine of ignoble ease, but the doctrine of the strenuous life" (2), the kinship to Ortega's concepts becomes immediately apparent.

This then is the "uninhibited child spoiled by the Age of Science." His attitude has been characterized by the scientist-philosopher Lecomte du Nouy (10) as "insulting to man because it neglects . . . the noblest human qualities . . . superior to . . . a ruminating cow." Mass man is furthermore—according to Ortega—mass-produced so fast "that it has been difficult to saturate him with traditional culture."

Culture represents human thought and activity of an enormous wing span and manifestations of a universal order. It is not the place here to even attempt definitions such as, for example, Spengler's differentiation between culture and civilization (11), but I should like to give just one composite quotation from J. Huizinga, a Dutch sociologist of keen preception and perspicuous interpretation (12). He defines it as follows:

Culture has as its premise a harmonious balance between the rule over Nature and material things and an attitude of a community directed towards morality, spirituality and idealism (sic!) in which concepts such as "duty" and "service" play a dominant role in the life of its members.

Much more could be said also in terms of ethics, Christian and otherwise. The examples from a few of the outstanding thinkers of our Age were chosen only because of their sincere concern and distinct clarity which brings out the new attitude of mass man in sharp contrast. I shall implement this now with a few practical examples from my own experience taken at random.

There is the "loving" wife of one of my present patients who offers every resistance and obstruction (all beautifully rationalized of course) to the return home of her husband because it might—and to a minor extent certainly will—limit her personal and professional freedom. All other conditions are unusually opportune; the patient is fully rehabilitated

including capability for part-time work. The wife has also been assured that, if there be a change to the worse in the multiple sclerosis of her husband, she could immediately return him to the hospital. She remained adamant in her refusal.

There is a father who went really out of his way to prevent the homecoming of his own son. He collected affidavits from the other family members (!) and neighbors and sent them to his Congressman (!) together with a letter of his own complaining bitterly about the "insinuation" on our part to take his son back as "an insane cripple." The truth was that the son with brain injury, from a car accident had been completely rehabilitated and that State Rehabilitation had already agreed to take over after discharge from the hospital. The patient, age about 25, is therefore now being considered for admission to a domiciliary home. We have the hope that we will rehabilitate him back into the community in spite of his rejection by his father.

Such examples could be cited to fill volumes. Holding them up to the background of our times and Ortega's analysis of mass man, I don't believe any further comment will be necessary. As to geriatrics, the consequences are grave indeed. This attitude deprives the rehabilitated patient not only of the most desirable milieu in which to live, but the rejection also hurts him personally and contributes not infrequently to a regression, on occasion to a psychotic reaction nullifying all former rehabilitation efforts. Facing this, I sometimes begin to doubt whether a man's own home, his familiar surroundings really are the most desirable milieu. I have always been reluctant to agree with Ortega; but the encounters with "mass man's irresponsibility" are becoming so frequent that a revision of the concept of "home" is perhaps more realistic and necessary than one is inclined to believe. It seems indeed as though the question were not unjustified concerning the fate of the American family. Can the concept of the family as the fundamental unit of society still be maintained or are we drifting toward its disintegration—at least in some social strata where economic pressures, insecurity, divorce rate or other forces create conditions prone to atomize the family group? Could this be, at least in part, mass man's newest "achievement" in the field of unrestrained egotism?

Be this as it may, the balance between mass man and mass society has to be struck by somebody. The question is: by whom? Opinions are divided. There are those who believe that it will be done by arousing the individual to accept the challenge of responsibility. But with the decline of genuine education (13), the watered-down mass culture (14), the deterioration of ethics as reflected in mass man's attitudes, this does

become doubtful. He is being drowned, moreover, by the problems besetting him and his society and is being squeezed out by a constellation of forces which are too enormous and too incomprehensible for him to handle. Can the individual under these circumstances really be aroused? The optimists like R. W. Davenport and the editors of *Fortune* (2) believe he can.

The pessimists have given up hope. John Adams, for example, was of the opinion 150 years ago "that the people as a whole . . . are the worst conceivable keepers of their own liberties." And Ortega y Gasset states (6) that it is the minority group who aspires to his "noble life," that is, individuals who are concerned enough and willing (although not always capable or fit) to think and act for mass man's disinterested egotism. Hence, the minority of the "noble life" has to concern itself with the mass of Theodore Roosevelt's "ignoble ease." All of this seems to boil down to the question whether an individual is already mass, stamped, conforming, or still identifiable as a person, free and individualist, "noble" if you will. The editors of *Fortune* (2) call this "the crucial American question" of our time. I am inclined to agree with them.

Since the foregoing is only meant as a background for the discussion to follow, I cannot pursue this issue any further. Its relevance to our topic will become apparent when we now reverse our point of observation turning from mass man *vs.* mass society to society *vis a vis* the individual. The picture seems to brighten fairly. Among the changes which have occurred here and appear significant in relation to Geriatrics, are two in my opinion particularly noteworthy:

The awakening of a social conscience began to make itself felt on a larger scale and irrespective of religious connotations (which had prevailed throughout the Middle Ages and still account, of course, for a vast number of charitable institutions, after the revolutions in America and France of the late 18th Century. It grew and spread with these and after the lesser revolutions in Italy and Germany of the 19th Century. With these ended the "Ancient Regime," *i.e.*, the medieval feudalism of the preceding millennium since Charlemagne.

It should be remembered that up to the beginning of the last century, the masses had been the peasants on the land and the burghers in the towns (some notable exceptions among the latter). They were kept in virtual serfdom, useful to kings and bishops only for tilling the soil, paying taxes and producing the soldiery to fight their wars. But with the Age of Reason came the enlightenment so perfectly docu-

mented by our Declaration of Independence, our Constitution and particularly the Bill of Rights which incidentally is according to Padover "one of the noblest . . . achievements of American Democracy" (15).

Concepts of human dignity came into being, of the individual created equal before God, to be treated equal before the law. This in turn brought into play the concern of the government for its people. It reached beyond the self-glorifying interest of a monarch in his "subjects," beyond the condescending generosity of impulse of "His Majesty." In this country, it reached particularly into education (16,17), as the Fathers of the Republic well realized that one of the most effective weapons against tyranny is an educated citizenry.

Be it noted, however, that in the field of general welfare and health, the government is a relative newcomer (2). It is not quite 80 years, for example, that Germany embarked on an ambitious program of health legislation on an unprecedented scale. It was followed by the Scandinavian countries and, in 1948, by Great Britain with its National Health Service which seems to turn out successfully (18).

With this, we are already touching upon the second important change: The increasing concern and responsibility of government for the affairs of the governed.

In its deeper meaning, this is another consequence of the psychodynamics of mass society. In order to understand it better, I prefaced this discussion with a few words about the "crucial American question." Whatever the answer, the fact remains that the responsibility of government will in all probability increase in the same ratio in which responsibility and capability of mass man decrease.

Ideas of this sort had a slow and reluctant growth in this country which prides itself on being the land of the free, of the individualist, the non-conformist. But the latter has almost disappeared, and it seems as though the impact of mass society is inexorable. In times of crises it became acute. The economic disaster of 1929 with the depression of the Thirties gave the concern of government — and again not primarily in the sphere of health or medicine — a decisive boost. The National Recovery Act and other legislation affected deeply and closely the entire nation.

Another such boost came perhaps with and during World War II. The necessity of total mobilization in order to win a total war and other currents of thoughts and events brought the realization conceivably closer that a nation is indeed one indivisible whole. Today in the Age of the Masses, we have to add: interdependent whole since it appears not only

probable but almost certain (2) that interdependence has outgrown independence as an attainable goal in a mass society.

In order to complete the picture, we finally have to add specific developments in Medicine itself which have contributed in causing Geriatrics to grow to such proportions. Among them, two stand out as particularly pertinent (1):

1. The increased life expectancy at birth which stands presently at 68 years for males, 72 years for females in the United States. It is due to the reduction of the death rate from communicable diseases in childhood and youth. It has reached the fantastic decline of 92%! It means that those born during the past two decades have a vastly greater chance to live to an advanced age.

2. The reduction of the mortality rate in general which amounts to 46%. It is due to the brilliant advances in medicine witnessed during the past 80 years. It is of even greater impact on the immediate present since it keeps the older age group alive longer; it swells the geriatric ranks of our population right this moment.

#### SOME SOLUTIONS OF THE GERIATRIC PROBLEM

An attempt has been made in the foregoing to show some of the causes of the challenge of Geriatrics. I have tried to discern four major revolutionary developments in human affairs: The Biological Revolution of the population explosion upon this earth; the Industrial Revolution and its consequences; the "Revolt of the Masses" with its peculiar psychodynamics; and the Revolution in Science accelerating the progress of Medicine at an incredible pace.

Thus, geriatrics has become an inseparable part in the life of our society. There can be no doubt, in fact, that it will grow more challenging in the future. Searching for solutions, we might find, however, that the situation is perhaps not as formidable as it would appear up to this point.

In the first place, there is a great number of elderly people who bear their infirmities with wisdom and perseverance; who have minds of their own which are still clear, sometimes brilliant; who have interests, hobbies, avocations or occupations. Many are also (or because of this) relatively independent economically. They are not a problem; and we do not have to think of the few famous ones either such as Bernard Baruch, Winston Churchill, Eleanor Roosevelt, or Bruno Walter although their vitality and active creative powers at their respective ages are inspiring to all of us.

Secondly, the Veterans Administration has domiciliary homes and geriatric services in its hospitals which can take care of the needs of the elderly veteran. In the former, a new domiciliary activities program was introduced in 1956. We shall touch upon this later on. Suffice it to say that this program represents a great improvement. It is also considered to be "in an evolutionary stage" (19); changes will be made as experience with it grows.

Thirdly, the demoralizing and depressing attitude of mass man can be resisted. Since I believe among many (20) in family participation in rehabilitation, I instituted a "rehabilitation clinic for relatives" during my tenure of office in Buffalo. It was organized with the idea that the person to be in charge of the veteran at home should spend at least an entire morning on the rehabilitation ward with nurse and aide in order to become familiar with what the patient could or should do for himself and what had to be done for, as well as to him (if anything). This was followed by an interview in which the entire situation was discussed in detail. The reassuring thought also was conveyed of course that the patient may be returned to the hospital in case of illness unmanageable at home. Often, this whole procedure was preceded by a "trial visit."

This type of "pre-discharge planning" was based on the observation that fear and worry over handling the patient was a major hurdle with some relatives rather than rejection or selfish irresponsibility. Becoming familiar with the entire routine care relieves often the anxiety of the "unknown" about the patient. Relatives, moreover, frequently become quite impressed by the quiet, unpretentious ways the personnel goes about its business. They see that it can be done; they grow more willing at least to try. Their morale is strengthened, their fears attenuated, and there is no need to panic. This realization even weakens the determination of refusing, on occasion, to take the patient home.

Fourth, in the country at large, there are geriatric or chronic disease hospitals, homes for the aged, nursing or boarding homes and a great number of charitable institutions already mentioned. Labor unions are initiating retirement and pension plans (8); and there are old age pensions and social security. There is also a variety of community services such as nurses' associations whose members visit in the homes of the geriatric disabled; or "day centers" (8) where the senior citizen finds company and constructive activity, *i.e.*, the remedy of the two paramount ills of this age group: loneliness and idleness.

Fifth, there is the "home service plan." After the



acute phase of the patient's condition has been treated in a hospital, its "long-term" phase is treated at home by a team from the same hospital in order to attain optimal function and to maintain it as long as possible so that re-admission is being prevented or at least delayed.

As a matter of record, I have administered this type of home care myself during my practice years in New York City. The reason then was the difficulties of transportation aggravated by the gasoline and automobile shortage during the last World War. It made it often impossible for some disabled people to reach my office by bus or subway. Therefore, I put my physical therapist and the portable equipment in the car and gave the treatments in the home of the patient.

The "home care program" does exactly this except that the team today is more differentiated. In the early forties, one had to be one's own social worker and vocational counsellor. Today, all these disciplines are individually represented on the team including a nurse and even an occupational therapist. The Montefiore Hospital in New York developed such a plan in 1946 (21), also the Jewish Hospital in St. Louis (22) and many other metropolitan cities. These plans are meeting with success seemingly everywhere since they satisfy basic and urgent needs of everyone concerned.

Sixth, new institutions are being built by progressive cities, some by outstanding modern architects. One of the most remarkable of these is the new addition to Riverview, the old county home in Torresdale near Philadelphia (23, 24). Located on the west shore of the Delaware River, it is built in the pavilion system which surrounds a centrally located "activities hall" containing dining facilities, living rooms, library, beauty shop, workshops for occupational therapy and a department of physical therapy. In all, Riverview is today a place of inspiring beauty, impressive utility and carefully planned practicality.

In view of the new building activity present and future, it may be appropriate to discuss a few points which experience has taught us to pay attention to. They are as follows:

1. The geriatric hospital *per se* is obsolete (25). The problems can be solved more effectively as a geriatric unit or wing of a so-called acute general hospital where both the necessary staff and the medical facilities are available. It has to be remembered that the chronic or "long-term" problem can become acute within minutes.

2. Geriatric patients should be grouped together because:

- a. they appear happier within their own age group. This is also true with veterans. The old fellow with

glowing memories of Flanders or Verdun is little interested in his younger comrade of Leyte Gulf or Omaha Beach, strange as it may seem.

- b. of the competition within their own group. However mild this may be, it can be used in motivating the geriatric patient.

- c. in an otherwise acute ward, the elderly chronic is often neglected. The mere nod of the doctor on rounds or a routine remark by a nurse rushing past because of "the emergency in 249" is being resented, even though nobody is to blame. But hostility towards personnel can and must be avoided.

- d. administration is greatly simplified.

- e. teamwork between nurses and aides on the one hand and rehabilitation personnel on the other is much easier, more effective and better coordinated.

3. Rehabilitation facilities in form of branch clinics of all therapies in the geriatric wing are vital to the success of PM&R in both maintenance and actual rehabilitation treatment.

4. The average geriatric patients do not like to be "tucked away" in the country. If it can be accomplished, the geriatric unit or annex should face a busy thoroughfare in the city and as downtown as possible or feasible. They positively want to participate, even if only as on-lookers, in the "big life."

So much for avoiding some pitfalls when building new. As can be seen from the foregoing brief "inventory," there are many facilities and methods to cope with the geriatric challenge. Some of these are in existence, some are being developed, others are being experimented with.

An increasing share of the burden, incidentally, will be carried by the nursing homes in the future. Their total bed capacity today is estimated as high as 150,000 to 170,000 (26, 27), half of which has come into being since 1953, and another 25 per cent since 1955. This is impressive evidence of their need. The question is open, however, whether they are adequate in terms of housing, living and treatment facilities at a time when we have abandoned the old concept of mere "custodial" care.

Since this is equally a question with many of the older institutions for geriatric care, it appears that what is really needed most and should be done presently and predominantly, is to recognize and revitalize such institutions in order to bring them up to par with modern standards of geriatric rehabilitation.

#### STEPS IN RAISING STANDARDS OF GERIATRIC REHABILITATION

In order to accomplish such revitalization, a definite procedure should be followed. It comprises



four major steps. First, we have to know the "geriatric residents" in terms of their medical, social, economic and vocational (if any) capabilities and potentialities. Secondly, we have to know their rehabilitation needs. Thirdly, we have to set realistic goals for our rehabilitation efforts. Fourth, we have to equate the standards and the needs with the budgets available or potentially available in the future and also with facilities already at hand (space, personnel, equipment) and then have to compromise with whatever the appropriations and the facilities will permit us to establish.

The material to be discussed is the result of my personal experience based on 18 years of working with geriatric patients, of participating in two major geriatric surveys (28, 29), and of planning and establishing integrated PM&R facilities in a geriatric service of a 1,000 bed teaching hospital of the Veterans Administration (30). The results are as follows:

#### Step 1

From the rehabilitation point of view, the residents of a geriatric institution fall usually into three major categories:

(a) *The Infirmary Group*, definitely beyond rehabilitation, and primarily patients in need of 24-hour nursing and attendant care, amounts to approximately 30%; (b) *The Rehabilitation Group*, completely ambulatory and self-sufficient, many actually on work assignments, amounts to approximately 20%; (c) *The Liability Group*, comprising a broad band in this human spectrum between the two other groups, reaching in types from fairly severe disabilities of group b. or almost so, amounts to approximately 50% or half of the population of the institution.

While it was relatively easy to define and identify the first two groups, the third one offered many difficulties due to the great variant in the medical condition, the level of functioning in the institution, and the actual rehabilitation needs. Therefore, the paramount necessity here is screening. This does not mean that the others can be picked up by just meeting them in the corridors; they have of course to be found, too. It does mean that the selection is infinitely more intricate, tedious and time-consuming with the margin of doubt and error wider than with the other two groups.

In order to narrow this down, the team approach, as so often in rehabilitation, is the logical answer; and in order to give the team a fair chance, the *reception unit* is the second logical answer. The newly arrived senior citizen is kept there for about two weeks, and the necessary observations, examinations and inter-

views are being conducted by physician, social worker, PM&R personnel, psychologist and others. At the same time, an orientation about the institution—physical lay-out, purpose, spirit and activities—is given to the new arrival.

Much of this is by no means new. At the New York Training School for Boys at Warwick, for example, this "reception system" was already in use when I joined its staff in 1944, and probably had been utilized for 20 prior years. It should be mentioned in passing that today, the accent has been shifted more to "orientation" (31) which apparently is less rigid and offers advantages of better serving specific needs of that young age group (12 to 16 years). In the Veterans Administration, I recommended such a system in 1949 for the new Domiciliary Program (28) in which it was incorporated. We worked with a modified version of the same principle during 1953-54 (32).

The leader of this team should be a physician well versed in both medicine and rehabilitation, in short: the physiatrist (33). Due to his background, training and experience, he is probably best suited for the final synthesis of all other part-information, a synthesis necessary for all future decisions (category, activity, changes and needs) in the rehabilitation process. This was found to be true in the VA Survey of 1949 and has been confirmed eloquently in the non-VA Survey of 1957. It is gratifying to note that the New York State Dept. of Health followed this recommendation without hesitation: One of the physiatrists who participated in that survey is now the director of the PM&R activities in the institution investigated.

Next to screening, the dividing of the geriatric residents into differentiated groups (according to the findings during their stay in the reception unit) and keeping them so, is the second fundamental condition for planned and constructive living in a geriatric institution, i.e., the subdivision into easily identifiable units.

Therefore, the residents are being distributed from the *reception unit* to (a) the *rehabilitation unit*, (b) the *sheltered workshop unit*, (c) the *infirmary unit* (not applicable in the VA), (d) the *home unit*.

The third fundamental condition is the *Sheltered Workshop*. I personally look upon its function as both a means of rehabilitation therapy as well as a goal of such therapy. In the VA Survey of 1949, there were 30.5% found in need of this systematic, supervised activity; in the non-VA Survey of 1957, we found 31.6% with the same need. Aside from my surprise over the closeness of these figures, they mean an average of 310 people in a 1,000-bed institution!

### Step 2 - Treatment Needs

With the last paragraph above, we have taken the second step. The rehabilitation needs are summarized in Table 1.

PM&R TREATMENT NEEDS PER 1,000 RESIDENTS	
1. Physical & exercise Therapy + ambulation .....	193
2. Occupational Therapy:	
a. General and Activities of Daily Living .....	139
b. Sheltered Workshop .....	310
3. Speech retraining (and Audio rehabilitation) .....	44
4. Blind Rehabilitation .....	15
TOTAL .....	701

TABLE 1

Several comments appear in order: First, a surprising observation was made concerning the *rehabilitation group*. It was found in both surveys that the majority of these people were already rehabilitated by what could be called a process of "quasi-self-rehabilitation," that is, by apparently nothing else but simple adaptation. The members of this group are, therefore, only secondarily problems of rehabilitation, but primarily problems of disposition. An adequately staffed Social Work Service should return many of them to the community. In both surveys, this subgroup amounted to about 13%.

Secondly, returning to the tabulation, the involvement of occupational therapy with 449 treatment needs is considerable, to put it mildly. It corresponds to about 335 geriatric residents or one-third of the entire population! This figure is arrived at by subtracting the average "overlap" due to simultaneous treatment needs from their total, usually 25%, according to our experience. For example, a man in the sheltered workshop might also receive speech retraining or gait training or both at the same time.

Thirdly, as far as the different groups are concerned, they are all involved, the bulk of the patients, however, coming from the *liability group*.

Finally, the total of 701 treatment needs corresponds to about 525 geriatric residents. This is perhaps even more impressive than the figures for occupational therapy since it indicates that over one-half of the population of a geriatric institution will eventually become involved in rehabilitation activities! This check by treatment needs, incidentally, confirms very well the general figures of our findings which showed 50% in 1949 and 52% in 1957 as being worthwhile prospects for PM&R activities. This check shows 52.5%.

### Step 3 - Goals

Rehabilitation goals fall into two main categories, that is, what we have called for brevity's sake *within* and *without* the institution. The latter is the logical goal for the *rehabilitation group* either in terms of

predominantly social work for the 13% of the "self-rehabilitated" group or in terms of predominantly PM&R work for the remaining 7%. This indeed is the rehabilitation group *par excellence*.

Rehabilitation *within* has many facets the most important of which are as follows: (a) toward a schedule of 6 to 8 hours of regular work (what the VA calls "member employee"); (b) toward Sheltered Workshop; (c) toward higher functional levels, *e.g.*, to wheelchair existence from bed existence or to ambulation from wheelchair and so forth; (d) PM&R maintenance therapy which tries to prevent deterioration. Be it never forgotten that Time is our worst enemy in Geriatrics!

### Step 4 - Staffing

With over one-half of the geriatric population of such institutions in need of rehabilitation therapy of one type or another, the enormity of the task becomes apparent. It is also well known by now, as Tomasulo *et al.* (34) have pointed out more recently, that "good medical care of the aged . . . produces good results in improved physical and mental condition, morale, longevity and pleasure. If available at the proper stages of the disease processes, it prevents many of the disability problems of the aging."

The authors go on to say: "Society will demand adequate medical care in this area in the near future. Adequate medical care is not cheap. The least expensive way of providing (it) should be developed to make the cost tolerable."

To this, I should like to add emphatically that such care is not expensive either. The trouble is that there are still too few people in responsible positions who are able to realize that rehabilitation is expensive in the beginning, but pays for itself in the long run. Even geriatric rehabilitation does.

The ideal situation then would be to have a complete Rehabilitation Service, at least for a 1,000-bed institution. The Goldwater Hospital in New York City, for example, has just that (8). My personal experience strongly supports this view. At the time of our best coverage of a Domiciliary Home, I had 12 people, seven of whom were registered therapists, five were "member employees." All did a good job. To mention only one type of activity, we rehabilitated approximately 24 domiciliary members out of the Home per year at that time. As far as "member employees" are concerned they offer one opportunity to compromise without lowering the quality of treatment, *i.e.*, compromise in the needs of highly trained personnel. With less than six or seven such trained persons, however, it would be difficult to maintain a

good program (starting one is of course a different matter). This seems to be implemented by another institution, Riverview, near Philadelphia, which, with 942 residents employs three physical and four occupational therapists (23, 24). With such a crew as the core, it should not be difficult to rehabilitate several residents to "member employee" status, thus producing eventually an adequate staff.

Another compromise, applicable to Sheltered Workshop staffing, would be to make use of existing institutional personnel such as carpenter, gardener or electrician. It would take the occupational therapist in charge some time to orient these people in rehabilitation thinking, but it might well be worth the effort later on.

A third compromise is to employ therapy aides in addition to registered therapists. This has been customary in many places, including the VA for many years. My personal experience is this respect is most satisfactory.

In this manner, initial personnel budgets can be kept low. Nevertheless, compromises with the powers-that-be will still be necessary. We have to be prepared to start with little in the hope that expansion will become possible in due time. This is a matter of judicious judgment on our part and—on the paying end—often a matter of the blunt and simple question to those powers: "How much rehabilitation are you willing to buy?" Because we should always remember that rehabilitation has nothing to lose, and our senior citizens have everything to gain. Any additional PM&R facilities make for a better way of living for these people. Let us also remember one more thing: The bleakness encountered in many of these institutions in the past, was not so much due to the severe disabilities of the patients in the Infirmary, but to the idleness forced upon those who are capable and often more than willing to work within the framework of their remaining or regained physical and mental powers or skills.

Let us help to remove this idleness from so many minds and hands, and the bleakness will vanish. Even though some of these institutions may look old fashioned, even glum from the outside, it won't matter much as long as the spirit of hope and aspiration, of purpose and activity pervades the ancient halls. For, it is the spirit within—buildings and humans alike—that counts.

#### SUMMARY

1. Some of the causes of the challenge of Geriatrics have been described having grown out of four major revolutionary developments in our civilization which have been enumerated.

2. An "inventory" at random of institutions and methods has been made demonstrating a variety of solutions of the geriatric problem.

3. A few misconceptions of the past regarding geriatric rehabilitation and new institutions, along with their correction have been touched upon.

4. An attempt has been made to describe how the challenge of Geriatrics can be partially met by revitalizing the older institutions for geriatric care in bringing them up to modern standards of geriatric rehabilitation.

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# ENDURANCE TRAINING FOR ATHLETES\*

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It is a curious fact that the available texts on athletic training do not devote detailed attention to the development of endurance. It is the purpose of this paper to present the current status of scientific knowledge in the field; it is designed, in effect, to serve as a supplement to Morehouse and Rasch's *Scientific Basis of Athletic Training* (1).

The literature on training suggests that there are three principal ways in which training programs develop endurance:

1. By increasing the efficiency of movement, thereby reducing the energy expenditure required to perform the task.
  2. By increasing the rate at which oxygen can be taken up and transported to the muscles.
  3. By developing the ability to ignore the discomforts associated with fatigue and oxygen debt.
- Each of these will be discussed in some detail.

## REDUCING ENERGY EXPENDITURE

In 1930 Gemmill and his confreres (2) demonstrated that the energy of expenditure of stationary bicycling decreases with training. Subsequent studies have confirmed that this finding is also valid for other forms of exercise. Such an improvement in efficiency might result from either increased economy of effort through better neuro-muscular coordination, or from physiological changes in the muscles, which produce a more efficient conversion of chemical energy to mechanical energy. Gemmill *et al.* preferred the latter explanation, suggesting that such changes might enable the cells to take a greater percentage of oxygen out of the blood and thus reduce the demands on the circulatory-respiratory mechanism, by an increase in the effective surface of the capillary bed supply of the muscle, by changes in the nervous control of respiration and circulation during work, or by other means.

More recent studies (3,4) have tended to emphasize the importance of skill development. The resulting reduced energy expenditure is not necessarily related to an increase in muscle power. An important aspect of skill in racing competition is pacing, that is, learning the maximal speed at which the athlete may function so that he will reach the finish line coincidentally with the onset of exhaustion. After a pains-

taking study of the circulatory systems of Hagg and Andersson, Nylin (5) admitted that it was very difficult to find any divergencies from ordinary healthy persons and suggested that the true explanation of their success lay in their technique and judgment.

Early students of the subject became convinced that the most efficient way to run a distance race is to do so at an even pace. In part, this method of running seeks to avoid the expensive outlay of energy required in accelerating or decelerating from one speed to another. This is the technique followed by the winning drivers in the automobile economy runs, and there seems no doubt it is the most effective method of operating a mechanical contrivance.

The underlying concept has been generally accepted as applying to the human machine as well, although Bannister (6) questions its validity. He comments that runners appear to achieve their best times in the quarter mile by running the first part of the race considerably faster than the second. From the physiological data presented by Robinson *et al.* (7) it would be anticipated that precisely the opposite would be true in longer races. They found that when a man ran at constant speed his oxygen requirements decreased during the middle part of an exhausting run (coincident with the onset of the "second wind") but markedly increased (60-143%) during the last half-minute as he approached exhaustion. At the same time there was a definite acceleration in the rate of accumulation of blood lactic acid. As the man became exhausted, there was a noticeable loss of efficiency, attributable to the effects of fatigue and perhaps including such muscular changes as contracture (8) and increased viscosity (9) as well as disturbances of neuro-muscular coordination. This suggests that an exhaustive race should be at a pace which will postpone this change in physiological status to the very end. If the athlete starts out fast and accumulates a high oxygen debt in the early stages of the race, he is forced to run the greater portion of the event with a reduced degree of efficiency. In the case of Robinson *et al.*'s subject, the greatest efficiency was obtained when he ran the first part of the race a little slower than his average speed and finished "all out" in order to utilize the oxygen debt mechanism to its maximum.

Viewing this problem from another aspect, Stampfl (10) commented that a steady pace can be used only by those whose composure is so great that it cannot be shaken in the slightest by the use of pace

\*Report 59-22, College of Osteopathic Physicians and Surgeons, Los Angeles, Calif.



variations as a tactical weapon by his opponents. Such self assurance is rare.

Fitness for championship athletic performance rests upon a constellation of physiological qualities which are practically inseparable. In addition to skill, strength, endurance, power, and circulatory-respiratory efficiency are involved. Eight relationships between muscular strength and endurance have been reported (11) to exist:

1. The amount of work required to induce muscular exhaustion depends on the strength of the muscles involved.
2. The work output of muscles is greatest when they are in position to apply the greatest tension at the point of greatest stress.
3. The speed of muscular contraction affects its endurance. There appears to be an optimal combination of load and cadence for any given task and muscle group.
4. Muscles with the greatest strength have the greatest endurance.
5. Fatigue reduces the ability of a muscle to apply tension.
6. Strength recovery rates following fatigue are related to muscle condition and general body movement following exercise.
7. Muscular fatigue patterns from strenuous total-body activity can be revealed by strength decrements of individual muscle groups.
8. The strength decrements of involved muscle groups may be used as a criterion to evaluate the effects of activity on the body as a whole.

Every muscle has two optimal speeds, one for maximal efficiency and one for maximal power output (12). If left to his own devices, the individual tends to operate at his most efficient speed and to become more efficient with practice. In industry, the ease and efficiency of work are sometimes increased by adoption of a definite rhythmical swaying of the body (13). The demands of competition, however, may force the athlete to function at a rhythm in excess of that which he prefers. This may prove psychologically distressing, with the result that a great deal of time, effort, and practice will be required before the athlete is able to adapt himself to this new rhythm. It is obvious that basic changes of this type must be effected during the off-season.

By raising the tempo at which the work is performed to a level in excess of that naturally preferred, the athlete may increase his strength at a rate which appears to be at least equal to that achieved by increasing the resistance (14,15,16). Both raising the

tempo and increasing the resistance represent applications of the overload principle, which appears to be the essential factor in the development of either strength or endurance. Perhaps one of the most significant findings to come out of scientific studies of runners is the realization of the intensity and duration of training required to produce further physiological and performance improvements in men who have become well conditioned for a given event. Work which both the coach and the athlete regard as "intense" may be only sufficient to maintain levels already achieved (17).

The physiological justification for the development of strength as a means of improving endurance lies in the fact that with increases in strength fewer motor units need to be mobilized to effect a given movement. Since more units may then be used alternately, muscular endurance is increased. This may be offset to some extent by muscular hypertrophy, which means that the athlete has a bigger load to carry, and training for strength does not produce an equivalent improvement in the circulatory-respiratory system. In spite of the fact that strength and endurance are to some extent related, no single type of exercise appears capable of simultaneously developing both qualities to the maximum, although circuit training, to be described later in this paper, perhaps approaches this ideal. Probably more important to the endurance athlete than strength is the ability to relax the antagonistic muscles. Where this is not completely achieved, strength in the agonists helps in overcoming such latent resistance.

#### *Increasing Oxygen Transport*

It is generally agreed that in endurance running the weakest link is the maintenance of the supply of oxygen to the tissues, and that one of the most important results of training is an improvement in oxygen transport. Petren, Sjostrand, and Sylven found an increase of about 45 per cent in the number of capillaries in trained guinea pigs as compared with untrained animals. Later Krogh found that an active muscle of one side of the body might have forty to one hundred times the number of open capillaries found in a resting muscle on the other side of the body (18). It has long been known that activity is accompanied by increases in blood volume and in the ability to consume oxygen, both of which are related to the improvement of circulatory and oxidative processes in the muscles. Such considerations led Karpovich (3) to conclude that gains in endurance result primarily from improvements of the transport of the blood to the muscles.

In spite of past arguments, it now seems widely accepted that the hearts of endurance-type athletes

tend to undergo a physiologic hypertrophy, and, on the average, become larger than those of non-athletes (19,20,21). The heart, like other muscles, meets unusually severe strains by hypertrophying (22). If such a heart remains functionally normal, its possessor is better able to improve his cardiac output under stress. Since a linear relationship exists between cardiac output and oxygen uptake (23), an improved cardiac output increases the transport of oxygen to the muscles and the removal and distribution of lactate.

Astrand (24) considers that a high aerobic capacity is an essential characteristic of successful endurance runners. Other reactions of the circulatory system to strenuous athletic training seem of doubtful importance. It has been reported that training does not affect the basal  $\text{HbO}_2$  capacity, plasma protein, blood lactic acid, blood sugar, alkaline reserve, or alveolar  $\text{CO}_2$  tension (25). The blood of a trained athlete does not appear to differ from that of an untrained man (26). Training, even over prolonged periods, seems to have comparatively little effect on the electrocardiogram (27,28,29).

Abrahams (30) believes that too much emphasis is laid on the heart as the limiting factor in endurance, and suggests that the capacity for physical effort may depend upon some as yet unrecognized quality of the blood, or that the superlative athletes' muscles may have exceptional abilities to utilize oxygen, tolerate lactic acid, or develop antibodies to ensure its neutralization. Bramwell and Ellis (31) have likewise commented that an excellent circulatory mechanism cannot be the whole answer, and have suggested that perhaps a metabolic factor related to the functions of the liver is involved.

One clue to the possible nature of this liver factor is suggested by the work of Grollman and Phillips (32) who found that exhaustive exercise increased the blood ketones of untrained animals 187 per cent, and that of untrained animals 402 per cent. Apparently the CHO depletion resulting from heavy exercise causes the liver to produce ketone bodies at a higher rate. This would indicate that training makes the pathway for fat metabolism more efficient so that the animal may more easily use it to secure necessary energy. The oxidation of fat may play a more important role in providing energy during severe exercise than was previously believed, and this finding may be the basis underlying the observation that calories derived from fat form about 45 per cent of the total food intake of Finnish professional wrestlers (33).

Since more of these bodies are produced than can be utilized by the tissues, they accumulate in the blood

awaiting the oxygen by which they are oxidized. The excess oxygen taken after exercise is believed to be used primarily to oxidize the alactacid substances and to satisfy the increased metabolism. The oxidation of the ketone bodies thus represents the alactacid oxygen debt.

### *Resistance to Fatigue*

It is possible that a decreased sensitivity to acidosis develops with training (25). Morehouse (34) relates instances in which athletes who complained of leg pains before their blood lactic-acid level reached 100 milligrams per cent became able to tolerate a lactic-acid level about 189 milligrams per cent after two months training. They still felt pain at 100 milligrams but were now able to ignore it. Abrahams has emphasized that determination, stoicism, ability to withstand discomfort and fatigue and to endure the miseries of heat, cold, hunger, thirst, monotony, and boredom are inseparable from resistance to fatigue. It is probable that men voluntarily expose themselves to such strains in order to resolve inner tensions, and the athlete's capacity to ignore subjective feelings of pain arising from the processes and products of fatigue may be the factor which determines how closely he approaches the absolute limits of his performance (6,31,35).

### TRAINING PROGRAMS

Current theories of training for endurance include Fartlek Training, Interval Training, Circuit Training, and Repetition Training. These may be used at different stages of the training program or may be combined in some form of master schedule.

#### *Fartlek Training*

Fartlek is a Swedish word which may be freely translated as "speed play," and which represents an attempt to provide a training program which reproduces a natural pattern of activity. After the runners have become conditioned to easy cross-country running, free, untimed variations of pace are introduced into the program. These may vary from short, sharp sprints to fast middle distance runs, to sustained efforts over longer distances. The daily training program is planned to cover a given period of time rather than a given distance. It is claimed that the environment in which it is conducted and the mental attitude with which it is approached tend to offset fatigue, so that the athlete accomplishes more work in the assigned period than he would during a routine training session (36). Running of this kind develops stamina and resourcefulness. Its principal disadvantages lie in the fact that it is run on a surface different from that of the track used in competition;

the runner cannot be observed by the coach during its practice; its lack of emphasis upon speed renders it unsuitable for training for races of a mile or less, and since the speed is varied in accordance with the pleasure of the runner, it cannot be used to teach pace judgment.

### *Interval Training*

This consists of planned changes of pace over given distances. Its essence lies in the fact that a fast lap run in a given time is followed by a slow "recovery" or "interval" lap also run in a given time. It is mandatory that the athlete adhere to the predetermined pace. The recovery lap is generally two or three times as long as the fast lap, but this time is decreased as the runner improves his condition. Both stamina and skill are developed by this method, but the emphasis is on the latter, since the primary aim is to accustom the athlete to running at a particular speed which is progressively increased month by month and which is the pace he would use at his current level of fitness for running in competition (37).

A program of this type possesses great flexibility and can be easily varied to meet the needs of an athlete at any stage of training. The work load may be progressively increased by raising the speed, increasing the distance of the fast lap, shortening the intervals, or adding repetitions to the program. It has been suggested that it is not desirable to change the speed, since this may upset the athlete's competitive pace. If the distance of each run is increased, or the interval shortened, the individual may become exhausted too soon. It would thus appear that the best plan is to increase the number of repetitions only, while holding the other three factors constant (38). However, more severe stamina work must be included if the athlete is to attain the heights of his maximum performance.

### *Circuit Training*

The assumptions underlying Circuit Training are that general fitness is determined by four qualities: (1) muscular strength, or the ability to exert force against resistance; (2) muscular endurance, or the ability to continue the performance of heavy activity making relatively small demands on the circulatory-respiratory system; (3) general endurance, or the ability to continue the performance of activity making relatively large demands on the circulatory-respiratory system; and (4) muscular power, or the ability to develop horsepower. It further assumes that there must be a progressively increased loading of the circulatory-respiratory system over long periods if general endurance is to be developed. To improve his fitness the athlete must either do more work

in the given training period or must do the same amount of work in a shorter period (39).

Nine to twelve different exercises may be set up, one at each of various stations on a circuit. The arrangement is so planned that the athlete can complete the circuit without undue fatigue. Once he has become thoroughly familiar with the procedure at each station, he is given a time trial to determine how long it takes him to complete three laps of the circuit without a rest pause between activities. He is then assigned a "target time" one-third lower than his recorded time. A training level of about one-half his maximum ability at each exercise is established, and the athlete is retested when he appears to have achieved his target-time. It will be recognized that this is actually a form of interval training (38).

### *Repetition Training*

A given distance is run a given number of times at a given speed, with a complete rest between each run. The rest must be long enough to permit the athlete to restore normal breathing and to recover from fatigue sufficiently to make the next set of repetitions at the pre-determined speed. This type of running is exhausting, and the repetitions will have to be done at a speed considerably below that to be run in an actual race. If the pace is increased, either the number of repetitions or the distance of each will have to be shortened. Stampfl (10) holds that when the runner reaches racing speed, the individual repetitions should never exceed more than one-half of the racing distance.

### SUMMARY

The key to the development of endurance appears to be work, work, and more work, with progressively increased loads. The possibility of overworking an athlete must be recognized, but Stampfl argues that few men in training ever actually approach the amount of hard training which they can profitably stand. Only through hard work and a great deal of it over a long period of time can the distance athlete achieve the physiological and psychological changes necessary for great endurance. It is almost self-evident that "an athlete who is free all day, every day, to undertake a program of training for an endurance event will certainly have a great advantage over an opponent" who is not (33). There is no short cut in attaining high standards of performance in endurance type activities.

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## PHYSICAL EXAMINATIONS IN THE VETERANS ADMINISTRATION FOR EMPLOYING PHYSICALLY HANDICAPPED WORKERS\*

LEE D. CADY, M.D.\*\*

"Every individual is entitled to an opportunity equal to his abilities." This premise has greatly increased employment of the physically handicapped individual in many industries. It will further our nation's socio-economic progress if we keep it articulate.

A physician making the usual routine physical examination for diagnosis and treatment has a purpose differing considerably with the physiatrist examining to employ a handicapped patient. The physician's views are rather like the bored penguin that persisted in walking backward in the marching file. Allegedly, the fellow next behind tired with looking him in the eyes so steadily. Why did he expect other penguins to endure this annoying social idiosyncrasy? "We follow our leaders, don't we?" he explained. "Me, I just want to know where I've been, that's all." The physiatrist's examination for the rehabilitation and placement must have individual perspective, not backward but into the future.

Using physical functions which remain for equivalent purposes, or as substitutes for what has been lost, is the goal. As examples, special training and a leg prosthesis enable an amputee to walk; oesophageal training or an artificial larynx permit a voiceless person communication by speech; or an artificial eye will not make a man see, but it may restore his self-confidence and morale. The physiatrist draws upon his experience and research while he is completing his examination and sets up progressive rehabilitation aims for his patient. In addition to his medicines and surgery, he employs the needed auxiliary therapists—physical, occupational, educational, manual arts, and corrective—and no two patients are exactly alike. Also, motivation of both the doctor and the patient is undoubtedly the greatest single important factor, and it makes the difference between success or failure in the presence of capabilities.

There are numerous obvious limitations or adverse job situations: A foot or leg disability case will not be deliberately placed in a job requiring agility, lifting, or carrying heavy burdens. The arthritic pa-

tient will not be placed in a job where it is cold and damp. A back disability patient will not be given a job requiring kneeling, stooping, bending, lifting, carrying or being in cramped positions. The "cured" tuberculosis patient will not be required to undergo brisk and prolonged physical exertions of any sort.

Often a laborer cannot go back to his former job because he will break down again. He may be carefully put through the hospital manual arts training, hospital industrial therapy, suitable working member work or into some sheltered workshop situation. It goes without saying, he will do best if he becomes a worker with a skill compatible with his physical limitations, and perhaps he will have a better earning capacity.

The physiatrist and the hospital vocational counselor must maintain a positive or progressive attitude with the patient. They will test the moral and physical capabilities by "industrial therapy" in or about the hospital's many different jobs. The VA graduates the patient from industrial therapy into a "working member" full-time hospital job with room, board and some pay. Other patients may be "counselled into" jobs directly into industry. I have eased us into the conception that handicapped people need examinations which classify each of them by kind and degree of functional ability and a functional exercising; *i.e.*, how much he can be expected to work with benefit to himself and his employer.

Knowledge and viewpoints have changed. It is pretty well established that the *useful* use of mental and physical functions, within the individual's own tolerance, promotes life extension. Thirty-five years ago when practicing doctors were not so well informed as they are now, by the comparatively rare post-mortem examinations, I saw some of my preceptor's patients die of "acute indigestion." They had symptomatology referring to the upper abdomen and progressed rapidly into terminal shock. Autopsies revealed a coronary artery blockage or rupture. As to the indigestion, you may recall the newspapers said President Eisenhower blamed the onions in his luncheon as his coronary syndrome started. Years ago, his true condition might not have been correctly diagnosed; and then, if he had survived, he probably would have returned to his work in the White House, maybe too early. However, the coronary cases diag-

\*Delivered, Texas Committee for the Employment of the Physically Handicapped, September 27, 1957, Austin, Texas.

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nosed in those days often had an iatrogenic cardiac neurosis superimposed because of the doctor's own fears of a bad prognosis. Today, such patients are pretty quickly classified as to degree of disability and healing. The patient will ambulate as early as possible and go back to a job compatible with his functional impairment, his own job preferably. This often means full responsibility but a prescribed relaxation in performance. The cardiologist prescribes now what and how much work the patient can do, rather than all he cannot do.

The employer has a right to know the nature and degree of the applicant's disability. Is it fixed or progressive, will it be a hindrance to other employees? He would like a medical report indicating the cause, treatment, duration, and prognosis. What special accident hazards threaten the disabled worker, if any, and whether he has been accident prone? An employer said, "In trying to discover the employability of a physically handicapped applicant, the thing I look for particularly is a healthy mental attitude that will indicate a reasonable assurance of proper adjustment. Most physically handicapped people are retarded more by a poor mental outlook than actual inability to perform physically."

The physician is also faced with the employer's problem of workman's compensation and injury clauses, as well as seniority regulations of labor contracts which tend to discourage utilization of the physically handicapped. It is important for the physician to give the employer all the information and knowledge that he wants, stark honesty, because the

employer must not be trapped into subsidizing the charity of an incompetent employee.

Conversely, a job-seeker with a disability should know he has to offer the necessary abilities and skills for the specific job: compatible aptitudes, interests, personality traits, and experience. This is the rule of the psychiatrist, or any other physician who specializes in rehabilitation. Such persons are considered employable only in any position in which their handicaps will not be hindrance to job performance or hazards to themselves, fellow employees or company property. Then, too, handicapped applicants must submit to the regular company physical examinations as a moral and legal prerequisite for employment, and should pass this examination in terms of performance in actual reference to the job situation. Equally important, handicapped individuals should be considered promotable as in the case of any other employee, provided they exhibit the qualifications for the new assignment. The physically handicapped must be able to "sell himself" if given an even chance for promotions.

Our handicapped person has his own need to be in society and industry. He wants to be recognized and treated as capable of production, and needs to be useful in his community.

Therefore, let us analyze our failures in the light of the complex environment we have created for ourselves. In this jet stream of scientific and technological advances, we can attain more successes by the critical recapitulations of disability versus ability. Failures offer clues to success.

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# HOMEOSTASIS: ESSENCE OF RECREATION

JAY S. SHIVERS, PH.D.\*

According to one theory, human behavior is stimulated by a drive to reduce or relieve organic or tissue needs. In the struggle for survival the organism which does not fulfill the insistent demands of physiological needs soon loses out. Through conscious desire in some cases, or by general ill-feelings, the body makes known its needs so that the organism mobilizes its functional apparatus to respond. The process by which the body continues to produce the chemical balance necessary to maintain life has been called homeostasis (1). According to this concept the body is an intricate chemical manufacturing plant, limited by organ structure, and dependent upon autonomic stimuli for effective maintenance of proper chemical relationships so that organic balance (equilibrium) is preserved. The process by which such equilibrium is maintained is homeostasis, a condition of adjustment designed to satisfy physiological needs.

Rignano (3) has clearly enunciated the principle of homeostasis by stating:

Every organism is a physiological system in a stationary condition and tends to preserve this condition or to restore it as soon as it is disturbed by any variation occurring within or outside the organism. This property constitutes the foundation and essence of all "need," of all "desires," of all the most important appetites. All movements of approach or withdrawal, of attack or flight, of seizing or rejecting which animals make are only so many direct or indirect consequences of this very general tendency of every stationary physiological condition to remain constant . . .

This same principle has been stated by Raup (2) as what he calls complacency, an adjustment ratio wherein a consummatory or fulfilling act completes a relationship that has been disturbed. Raup stresses the idea that maintaining homeostasis is the fundamental factor, not only of behavior, but of all life processes. His principle of complacency suggests that behavioral adjustments are related to the organism and its environment. The healthy organism maintains homeostasis through the process of adjustment. Raup further wrote that the condition of equilibrium is continuously interacting, i.e., always dynamic. Thus, this theory considers that human behavior moves away from equilibrium when physico-chemical balances are disturbed, toward it when meeting the need, and through it to continue human activity.

In his chapter on complacency and the autonomic nervous system, Raup comes to grips with what

might be termed psychological homeostasis. He refers to the psychological state of the organism as the thing that gives rise to behavior. Continuing this line of thought, he introduces the concept of the nervous system as a mechanism which serves the whole organism and eases the condition of stress as that organism seeks to adjust. The whole question of metabolic reaction to environmental stimulation is opened. The nervous system is thought of as the means whereby favorable relationships are maintained.

Relating concepts of equilibria to behavior patterns, Raup asserts that any disturbance of these little known equilibria reveal themselves in the psychological factor of complacency and its imbalances. When equilibrium is fully restored complacency develops. Maladjustment, therefore, is a disturbance of balance, i.e., lack of equilibrium between the organism and its surroundings. All behavior, then, is the effect of movement toward complacency or restored equilibrium. Since the maintenance of homeostasis affects psychological activities as well as tissue needs, mental adjustments reflected in behavior activities is effected.

Perhaps the most important implication of Raup's assertion of the dynamism of homeostasis is the progressive nature of this principle. Homeostasis is not static. As the organism reaches equilibrium it is concurrently creating new tensions, proceeding to throw itself off equilibrium. This would appear to fit present knowledge of both physiological and psychological functions. Thus the physical laws of energetics, principally the second law, would be involved in a system concerning free and bound energy (2).

. . . whenever there is activity of any kind in the part of the organism considered there is also a using up of energy. The cells are worn down, but there is also a corresponding heightened process of building up the cell. This metabolic process goes on just because there is activity in the part, throwing the energy condition off of equilibrium, and thus compelling a drive back toward that state.

Psychological homeostasis is merely the term given to mental complacency or equilibrium and is not separated from physico-chemical effects, since whatever disturbs even the most obscure tissue appears to influence the whole organism. Any type of activity might be an example of psychological homeostasis. The painter may be engrossed for any number of hours in his painting and never once be concerned with the function of his brush. The whole self is at ease as far as the brush and its utilization are con-

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cerned. Yet, in the course of the effort something might occur to the brush-relationship, and complacency disappears: the bristles of the brush may become loosened or tend to hold too much paint. Attention is turned toward the removal of the difficulty so as to return to the condition that was interrupted. The brush-relationship now enters into those processes which define changes in activity directions; furthermore, it will perpetuate itself until such time as some action so resolves it that the former condition of non-concern with it, can be restored. In the example, mental focus was directed toward the disturbing element which served as motivation for behavioral actions. This may be true for all behavior patterns.

If homeostasis is the condition that motivates behavior in human beings, then it must therefore serve as the motivational stimulus for recreation. Just as there are physico-chemical needs for equilibrium in the organism there is also a psychological need for equilibrium which reveals itself as the environment changes during the daily experiences of living. When the individual consciously or unconsciously realizes imbalance in his life he tends to move toward a rebalance in which harmony and accord between the self and environment are found. This balance may be restored through recreation.

The distinguishing feature of recreation is its consummatory quality which sets up or regains for the individual the equilibrium lost during impact with environmental forces. The consummatory act is characterized by complete absorption. During such intense concentration consummation displaces any maladjustment so that harmony is restored or recreated in the individual. The whole concept of the consummatory act depends upon and helps to explain the principle of homeostasis. In recreation a need is met and satisfied. The satisfaction continues until some other disturbance enters the psychosomatic field at which time equilibrium is lost and the process repeats itself. Thus the process is dynamic and perpetual.

The principle of homeostasis has been further defined and refined for inclusion in psychological systems attempting to interpret human behavior. The psychologists Snygg and Combs (4), assert that the preservation of the individual's self, the "I", makes logical and consistent all human behavior. Whether or not action is directed toward life preservation, suicide, or any other activity affecting the physical being, the concept of the phenomenal self can explain human behavior. They say:

The phenomenal self includes all those parts of the phenomenal field which the individual experiences as part or characteristic of himself.

Thus, all behavior may be explained and even predicted in the light of the individual's desire to maintain a concept of himself, *i.e.*, what he believes to be his actual self. The one basic human need is determined to be predicated on the desire for self-esteem. All other so-called needs or drives are in reality subservient to this one.

From birth to death the defense of the phenomenal self is the most pressing, most crucial, if not the only task of existence. Moreover, since human beings are conscious of the future, their needs extend into the future as well, and they strive to preserve not only the self as it exists but to build it up and strengthen it against the future of which they are aware. We might combine these two aspects in a formal definition of the basic human need as: the preservation and enhancement of the phenomenal self (4).

Seen from the phenomenological view, such seemingly diametrically opposed propensities as a life or death wish can be placed in context and may appear quite logical as a manifestation of the enhancement of the individual's phenomenal self. By this is meant a desire on the part of the individual to gratify some aspect of his self esteem. He may do this by appearing in one situation with a concern for "What will people think (of me)?" and in another by his reaction to physical privation or to a surfeit of physical goods. The phenomenal point of view is a psychological system based on the impact of culture upon the individual. It is a ready device for the explanation of behavior in terms of environmental pressures on the physical and mental existence of the organism as it attempts to adjust to the culture of which it is a part.

Snygg and Combs also suggest a conceptualization of goals differentiation. As the organism matures and seeks to gain an idea of self in its surroundings, goals arise to which the basic need, preservation and enhancement of the phenomenal self, is directed. Techniques, or the methods by which goal attainments are carried out, arise in the same way and are also differentiated as experience dictates. Three classifications of techniques as suggested by Snygg and Combs are:

1. Mastery of people and or things.
2. Identification with powerful forces, *i.e.*, pressure groups, individuals in control, or dominant ideas.
3. Physical change in the somatic organization.

The first two classes of techniques are self-explanatory, but the third needs some clarification. In order to regain self-esteem, peer status or other restoration of the phenomenal self, the individual may seek excitement usually associated with activities ranging from minor sports and games to drug addiction. The inherent stimulus derived from excitement results in an increased feeling of power and effectiveness which uplifts the lagging or humiliated self esteem and gives heightened vigor to the individual.



(4). This exhilaration is commonly sought in competitive activities, in exhibition of artistic or creative accomplishment, or in antagonistic and compulsive behaviors that may over-step social taboos in certain circumstances. The explanation offered for human behavior and the motivation stimulating such behavior is an all inclusive doctrine of the phenomenal self based on homeostasis. Behavior is produced by the organism's need to maintain a constant.

The principle of homeostasis has come to receive wide acceptance, especially among scientists who deal with bio-chemical, physio-chemical, or electro-chemical phenomena. It has been accorded wide popularity among psychologists who see in homeostasis the fundamental basis for human behavior. It has been noted that the body chemistry continually seeks to maintain equilibrium among its products, and therefore within the organism as a whole. Directly related to this aspect is the metabolic condition of the organism upon which behavioral activities are built. Just as the physio-chemical balance is concerned with equilibrium in the somatic field, psychological homeostasis is concerned with maintaining equilibrium in the psyche or mental field. Psychological homeostasis attempts to direct the mental state into a condition where there is unawareness of tension or stress. This is achieved during moments of complete concentration or absorption of the individual in any activity. During this period of consummation the individual is restored to a state of harmony within himself as well as toward his environment, a mind-body-situation relationship.

Recreation is characterized by its consummatory nature. It has power to seize and hold the attention of the individual to such an extent that the very meaning of time and environment disappears from view. In this respect it fulfills the need for psychological homeostasis. Recreation receives its motivation from the organismic movement toward equilibrium, based upon metabolic and environmental conditions. As such it is part of human behavior.

There are many aspects of psychology that can be explained in terms of biology and physiology. It is also true that in the more complex organisms there are blank spaces or unsupported assertions and analogies in the relationship between psychology and physiology. There is, however, an increasing tendency to begin to accept homeostasis and the implications that such a theory has for behavioral motivation. If psychological homeostasis is an acceptable explanation for recreational motivation then it abrogates the pleasure principle as its main aim and instinct as the drive which causes spontaneous action. Under these circumstances a new definition must be enunciated in order for recreation to be meaningful.

The element of consummation is essential to recreation. It is a process in which the individual becomes completely absorbed, *i.e.*, loses himself in the experience. At this point the organism is integrated and equilibrium is restored thus bringing about a re-creation of the individual. In this sense, consummation—and re-creation—is an end in itself. But this is a continually recurring process; even while organismic equilibrium is being restored new tensions are arising and there is renewed need for recreation through consummation.

The experience must be satisfying to the individual. No theory can be found which describes recreation in destructive terms; the very word has the opposite meaning. To recreate means to build anew, to heighten prowess, to strengthen the ego, to reconstruct in a way that is held to be satisfying. It may not be a debilitating experience. Only the individual can tell whether an experience is satisfying, but social institutions fix the requirements to which the individual must relate his experiences.

Recreation is a consummatory experience, non-debilitating in nature which is in the most literal sense a re-creation of the individual.

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#### VA BEGINS NEW RESEARCH ON THE BLIND

A new research program to help blinded veterans has been announced by the Veterans Administration. Just getting underway at the Hines, Ill., VA hospital, the project will test the usefulness of newer optical aids, such as microscopic and telescopic spectacles, for veterans with service-connected conditions who have so little vision that they are legally classified as blind.

Russell C. Williams, chief of blind rehabilitation for the VA in Washington, D.C., said neither these high-power lenses nor other optical aids developed in recent years can restore this sort of vision to normal. However, he said the agency hopes the devices will enable many of the veterans to read their own mail, look up telephone numbers, read street and bus signs, and see photographs.

Although in many cases the newer aids may give no useful vision except for a small amount of paper work at extremely close range, the contribution of this ability can be of great importance to a man who otherwise cannot read personal letters, Mr. Williams pointed out.

Blinded veterans in Illinois and surrounding states will be given the first opportunities to go to the Hines hospital for vision testing and training with the newer optical aids.

The VA will await the results of the Hines study before planning extension of the program to all the nation's legally blind veterans who can benefit from it. About half, or some 1,300, of the blinded veterans in the United States have light perception or some sight. Heading the optical aids program at Hines are two ophthalmologists, Dr. James Lebensohn and Dr. Robert Penn. VA therapists for the blind and VA social workers also will participate.



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#### OBESITY A PROCESS ACCORDING TO NEW RESEARCH

Losing pounds probably is not as easy for people as doctors long have thought, overweight mice at the Seattle, Wash., Veterans Administration hospital have shown.

Fatty tissue, instead of being simply fat storage or body "padding," is busily at work producing more fat to make the obese person even fatter, research conducted by Dr. David D. Feller with both mice and human volunteers at the Seattle VA hospital indicates.

Using radioactive carbon-14 as a tracer, Dr. Feller has described the biochemical processes by which fat is produced in fatty tissue.

His findings are expected to be valuable in study of causes of hardening of the arteries, metabolic diseases and obesity, and why fat people are more likely to have heart and other diseases than are normal for thin people.

## "From Other Journals"

Unless otherwise noted, all abstracts have been prepared by Philip J. Rasch, Ph.D.

Editorial, "The Mass Reflexes." *Canadian Medical Association Journal*, 81:254-255, August 15, 1959.

The aims of treatment of paraplegics are ambulation and economic independence. These can be achieved in the great majority of patients with injuries below the cervical cord provided nutritional insufficiency, bed sores, bladder disturbances, pain, and muscle spasms can be overcome. Muscle spasms are the most troublesome, leading to pain, contractures, fixed deformities, and bed sores. The underlying mechanisms are not understood. Treatment is complicated, ranging from the application of heat to major neurosurgery. Perhaps the most useful method is selective denervation and tenotomy. None of these is entirely satisfactory. Recently repeated injection of peripheral nerve with procaine has been utilized. This technique requires further evaluation.

F. de S. Donnan, "Physique and Hazardous Occupations." *British Medical Journal*, 5154:728-731, October 17, 1959.

The physique and choice of occupation of three groups of men serving in the Royal Marines—swimmer-canoeists, a highly arduous branch; general duty, the normal training branch; and men belonging to miscellaneous trades not involving major hazards—were studied by Parnell's methods of measurement. Swimmer-canoeists were significantly taller and heavier, with mesomorphy dominant or strongly represented. General duty marines and men engaged in less hazardous trades showed a more scattered distribution. Endomorphs and ectomorphs were absent in the first group, but appeared in the latter two. Physique estimation appears to be useful in drawing negative conclusions regarding suitability for arduous training.

Albert Stunkard, "Physical Activity, Emotions, and Human Obesity." *American Practitioner and Digest of Treatment*, 10:1500-1501, September, 1959.

Psychiatric investigation of obesity has traditionally focused on eating disorders; the current study attempts to measure physical activity. Fifteen obese women were matched with fifteen non-obese women. Each carried a pedometer for one week. Attitudes toward activity were measured by a direct questionnaire and by a sentence-completion test. The obese women walked less than half as far as the non-obese and exhibited sharply different attitudes.

The determinants of physical activity appear to be biologic (physical illness, injury, environmental temperature, food intake, and the phase of the female reproductive cycle), social (week day activities, occupation, and transportation,) and emotional. Physical activity is decreased during depression. Depression may be a main reason why some persons are obese.

Unless noted otherwise all abstracts have been prepared by Philip J. Rasch, Ph.D.

"Navy Research on Color Vision." *Naval Research Reviews*, October, 1959, p. 19.

Commander Dean Farnsworth, USN, has been working on the problem of color blindness. One of his aims is to eliminate color codes on equipment, or to restrict such codes to the colors that color defectives can determine—black, white, gray, yellow, blue, and brown. While it is generally believed that yellow is the best color for survival gear, the center of the eye is yellow and blue blind. Excessive research indicates that fluorescent red is the best color for sea-air rescue equipment.

Innes H. Pearse, "Steely Eyes and Pain." *British Medical Journal*, 5154:160, October 17, 1959.

Changes in the color of the eye can accompany anxiety states as well as pain. In the case of a certain pulmonary tuberculosis patient, this markedly blue-eyed woman develops grey eyes as the time for a medical check up approaches. After the examination her eyes immediately regain their blueness.

Kazuo Asahina *et al.*, "Influences of Excessive Exercise on the Structure and Function of Rat Organs." *Japanese Journal of Physiology*, 9:322-326, September 15, 1959.

Rats were exercised by a method which required forced swimming. Under light or moderate exercise the sexual cycle regularly appeared, but heavy exercise severely disturbed this cycle and caused a long lasting anestrus. This same effect has been observed in the human. The adrenal cortex at first hypertrophied, but later general degenerative changes and atrophy were observed. A marked picture of atrophy was also seen in the thymus, but few changes were found in the salivary glands or the testicles. Histological changes in the intestines and kidneys were very severe for their comparatively slight functional disturbances. Atrophy or degeneration appeared earlier in the castrated groups, suggesting the sexual hormone may have some important role in training.

Richard E. Gordon and Katherine K. Gordon, "Psychosomatic Problems in a Rapidly Growing Suburb." *Journal of the American Medical Association*, 170:1757-1764, August 8, 1959.

The purpose of this study was to determine whether the incidence of psychosomatic disorders is rising in expanding suburban communities. Total medical admissions for asthma, coronary thrombosis, duodenal ulcer, essential hypertension and hypertensive cardiovascular disease, and bronchopneumonia at three hospitals were compared. One hospital was in a rapidly growing suburb, one in a moderate-growth, mixed-rural community, and one in a stable rural area. Except for asthma, there was a direct and very significant relationship between the degree of mobility of the community and the percentages of the psychosomatic disorders studied. Asthma, which is closely associated with emotional depression and "unresolved dependence" is more common in rural communities, where emigration is the main form of geographic mobility and those left behind suffer from loneliness.

Young married women were relatively more prone to these disorders. Married women are undergoing a long-term change in the social role in the U.S., bringing expectations for greater independence and greater responsibilities. Often they are poorly prepared for their new role and are unable to comprehend and relieve their anxieties and chronic tensions. The rise in emotional maladjustments may signal an equalizing of the morbidity rates in the sexes.

The lesser male executives moving upward in their work have much to lose. Wrong decisions may throw them back into a degraded position. They are often fiercely competitive, "driving," and excitable in their efforts to get ahead against the resistance of the top echelon and the push of those below them. They can relax only when they have attained a secure place.

Children contribute little to economic success, while interfering with personal advancement and freedom. The cost of their education represents a threat to the father's financial security.

Many patients are overconcerned about keeping up appearances.

Only if a person's difficulties are in the past and his present is devoid of tension producing dangers can he "slow down." Showing a person that he has been under a strain but that it is now over is the essence of the effectiveness of insight in psychotherapy. A psychosomatic disorder is still another stress and fear of one adds to a person's tensions.

Investigation of the factors correlated with psychosomatic disorders will lead to better treatment and control.

Leslie W. Freeman, "First Aid and Transportation for Patients with Spinal Cord Injuries." *Journal of the American Medical Association*, 171:140-142, September 5, 1959.

The recent accident to a noted baseball player has focused renewed interest on spinal cord injuries. A surprising degree of function can be attained with relatively minor amounts of intact neural tissue. Those who first aid the patient must not add to his injuries. All unconscious patients or those complaining of back or neck pain must be assumed to have spinal cord injury. Most such patients are conscious and can advise of paralysis and loss of sensation. This can be verified by pinching the skin to establish the probable level of the lesion.

The majority of injuries to the spinal cord occur in the cervical or dorsolumbar regions. Every effort must be made to avoid rotation or flexion of the spine. If the injury is below the neck the patient must be lifted in such a way that the spinal alignment is not changed and placed on a stretcher face down and fully extended. Persons with cervical injury may need to be transported face up to avoid respiratory difficulties. Narcotics should never be administered unless other injuries dictate their use.

G. S. Kanter, "The Cause of Hypoglycemia in Dogs Exposed to Heat." *Air University Report* 59-38, School of Aviation Medicine, USAF, June, 1959.

When a dog (being largely devoid of active skin sweat glands) is exposed to high temperature, it can regulate its deep body temperature only by evaporation of fluid from the oral surface. Panting speeds up the flow of air in and out of the lungs and over the oral surfaces, and so accelerates the evaporation of water. Severe panting requires a considerable expenditure of energy and hypoglycemia results. High humidity makes this mechanism even less effective. Man regulates his body temperature by profuse sweating over the entire body surface. Ordinarily his deep body temperature does not increase more than 0.5° C., but this is accompanied by dehydration. In hot baths the sweat does not evaporate, deep body temperature increases, and hyperpnea begins. With deep body temperatures of over 102° F, sharply increased respiration and a tendency to hypoglycemia result.

Hans Kraus, Willi Nagler, and Sonya Weber, "Role of Exercise in the Prevention of Disease." *GP*, XX:121-126, September, 1959.

Many orthopedic disabilities and neuromuscular tension syndromes are due to underexercise. Compared to the underexercised person, the well exercised has low neuromuscular tension, low absolute and relative weight, low blood pressure, low pulse rate, greater adrenocortical reserve, greater muscle strength and flexibility, and greater vital capacity. Coronary heart disease, duodenal ulcer, and diabetes are more prevalent among the inactive. There is considerable interaction of physical fitness and emotional stability. The state of underexercise increases with the increase of mechanization, and the problem of inactivity becomes more urgent. The general practitioner should appraise muscle status as part of his general checkup.

Robert Sommer, "Patients Who Grow Old in a Mental Hospital." *Geriatrics*, 14:581-590, September, 1959.

Well-institutionalized patients are living longer and changing the complexion of hospitals. In the Saskatchewan Hospital approximately 35% of the patients have been there twenty years or longer. During this period they assume values and attitudes which unsuit them for life on the outside. The longer a patient is in the hospital the more important "physical" needs (eating, sleeping, exercise) become to him and the less important "social" needs (family, friends) and "abstract" needs (happiness, success) become. Oversuccessful adjustment to the hospital environment may reduce the patient's chances of leaving it. Self-contained wards, in which patients perform all customary household tasks, would do much to prevent a loss of routine skills.

Editorial, "Steely Eyes and Pain." *British Medical Journal*, 5149:418, September 12, 1959.

There exists an obvious difference in the pain reaction of individuals when subjected to the same stimulus. Sutton has found that reaction to pain is related to the color of the eyes. As the color goes through blue, blue-grey, green, hazel, light brown, and dark brown, reaction to pain tend to increase. No explanation of these findings is available.

## Special Report

A method of restoring the quadriceps muscle group by resistive exercise is described by M. Clement, M.S.R.G., M.N.I.P.H.H., remedial gymnast at the Durham Miner's Rehabilitation Centre, Durham, England, in a recent communication to the *Journal*. Mr. Clement advocates the system outlined in Table 1 as a combination method providing gains in strength, bulk, endurance and velocity which are the aims of the Durham program. It is a 20-minute daily treatment, extending over a period of six weeks and graduated to the muscle potential. According to Mr. Clement, it strikes a medium between the Oxford Techniques and the De Lorme method.

In establishing the starting exercise load, one-third the maximum 1 RM is used and this load is increased one pound every three days. The patient commences by doing ten repetitions, followed by a one minute rest. This is repeated until ten sets of ten repetitions each have been accomplished with the one-minute rest after each set. Repetitions are increased by five per set every third day so that each time the load is increased, so are the repetitions.

Mr. Clement states that if one does ten repetitions correctly, it should take approximately 35 seconds. A ten-set exercise session indicates that the patient has worked for approximately six minutes and has had ten minute's rest. Progressing to 60 repetitions followed by a one minute rest and repeated five times to make the 300 lifts involves about 18 minutes of exercise with only five minutes of rest which Mr. Clement believes is a sound endurance progression.

Week	Load lbs.	# sets*	# lifts per set	Total lifts
1	5	10	10	100
2	7	9	20	180
3	9	8	30	240
4	11	7	40	280
5	13	6	50	300
6	15	5	60	300

\*One minute rest between each set.

TABLE 1

J.A.P.M.R. — NOV. - DEC., 1959

## Book Reviews

**Child Welfare: Principles and Methods**, by Dorothy Zietz. (New York: John Wiley & Sons, Inc., 1959. 384 pp. \$5.50)

The author, an Associate Professor of Social Welfare, devotes the first nine chapters to a chronological history of the development of services, techniques, and philosophy related to the handicapped child. The remaining five chapters describe the various defects—physical, emotional, intellectual, and social—which interfere with normal growth and developmental processes, thus qualifying a person as "handicapped" and in need of special protection and services.

The concept of rehabilitation in child welfare is traced to 19th century detention homes and industrial schools whose young inmates were either "farmed out" to contractors through a special wage agreement or employed within the institution. When emphasis was shifted from work as a source of revenue to work as a means of learning and self-betterment, the resulting gains were widely acknowledged and the objectives of rehabilitation and vocational training began to take hold in the institutions of most states. We are given to see, however, the manner in which "ancient rigidities (remain) implanted in the hard earth of custom."

Although this book is addressed to the social welfare student and is heavily weighted in historical material, it does provide the student or worker in related fields a compact and interesting survey of the background of contemporary programs for the handicapped.

CTS

**Kinesiology and Applied Anatomy**, by Philip J. Rasch and Roger K. Burke. (Philadelphia: Lea & Febiger, 1959. 456 pp. \$7.50.)

Progress and professionalism become part of an organization only through the maturation and quality of the membership, their contributions to their specific field, and to society at large. It is a pleasure to review another scientific contribution co-authored by a certified corrective therapist and member of the Association for Physical and Mental Rehabilitation.

The authors designed this book to meet the pedagogical needs of the student as well as to serve as a source book for the professional in the fields of corrective and related therapies, physical education, and athletic coaching. The book is composed of basic kinesiological information and the latest scientific data as established through clinical research and investigation in the fields of applied anatomy and physiology.

An excellent and detailed table of contents thoroughly describes the substance of the text. Such material as the framework of the human body, the structure and physiology of the muscular and nervous systems, the mechanics and movements of each specific area of the body, kinesiological aspects of posture, walking, running, jumping, sports, games, and daily living are described. There are 226 illustrations and 18 charts in the book to assist in the explanation and simplification of the more technical information, along with extensive lists of references following each chapter.

*Kinesiology and Applied Anatomy* should be available in the library of every hospital that offers the specialty of physical medicine and rehabilitation and on the desk of all professional therapists. This book is a must for the student interested in delving into original source material and studies that provide us with scientific facts and figures.

HJB



**Family and Class Dynamics in Mental Illness**, by Jerome K. Meyers and Bertram H. Roberts. (New York: John Wiley & Sons, 1959. 295 pp. \$6.95.)

This research study on inter-relations between social stratification and mental illness in a New England urban community is the second part of a report which was initiated in an earlier book *Social Class and Mental Illness*, published by Wiley in 1958.

Two questions are investigated: Are social and psychodynamic factors in the development of psychiatric illness related to a patient's position in the social class structure of American society? Is mobility in the social class structure associated with the development of psychiatric illness? Divided into five parts—Introduction, Family Dynamics, Community Dynamics, The Mental Illness, and Conclusions—this book gives an excellent overall report of the findings of the research teams and their conclusions in answer to the two questions stated above. It is clearly written, the reports are complete with adequate foot notes, and the appendix includes 24 tables.

DCL

**Connective Tissue, Thrombosis, and Atherosclerosis**, Edited by Irvin H. Page. (New York: Academic Press, 1959. 316 pp. \$9.50.)

This book reports the proceedings of a conference held at Princeton in May, 1958, for the purpose of bringing together the thinking of various authorities in America and Europe related to the above subject.

Concern for the problems of atherosclerosis in the human population has demanded greater basic research in order to understand this threat to health. This conference sought to build upon previous conferences of an allied nature held during the past six years in an attempt to supply some of the answers relating to the most basic tissue chemistry as it varies from normal, and the ultimate development of atherosclerosis. An approach at the molecular level is suggested, as well as fibroplasia and fibrinolysis as they relate to the problem.

Anyone interested in atherosclerosis will find this report intriguing if they are willing to devote the necessary time to the understanding of the technical detail; for those studying or teaching in this field, appraisal of this material is essential.

MLB

**Food**, edited by Alfred Stefferud. (Washington, D. C.: Government Printing Office, 1959. 736 pp. \$2.25.)

As with most Department of Agriculture Yearbooks, this is an intensive study of one phase of our natural resources. The editor frankly avows his purpose of making the subject interesting to men and suggests particular chapters which they might enjoy reading.

Sections of the text are devoted to Backgrounds, The Nutrients, Health, Allowance, Our Needs, Quality, Preparation, Costs, Trends, Learning, and Programs. The numerous contributors are drawn primarily from the faculties of colleges and universities and from experts connected with the state or federal governments. It should be safe to assume that each is a recognized authority in his particular area.

This is such an encyclopedic presentation that it is unlikely that any one is going to sit down and read the text from cover to cover. Nevertheless, it contains literally "something for everyone." Personally speaking, this reviewer particularly enjoyed Larrick's discussion of the nutritional frauds perpetrated on the general public by unscrupulous operators. If the public takes the trouble to read this chapter it is safe to predict that the "take" by fraudulent promoters will be sharply reduced.

The book contains both a glossary and an index. It should be available in every public school and public library. As a minor objection, it seems unlikely that the attractive yellow cover is a practical shade for the grubby hands of students.

PJR

**Techniques of Athletic Training**, by Gene A. Logan and Roland F. Logan. Second Edition. (Los Angeles: Franklin-Adams Press, 1959. 141 pp.)

This is the Second Edition of a "how to" manual which originally appeared in 1952 and was reviewed in the May, 1954 issue of this *Journal*. In the interim it has gone through four printings, indicating that it has been well received by athletic trainers. The greater portion of the booklet is devoted to taping and shows little change from the earlier version although it is noted that the Drake wrapping for the ankle is now included. The section on body conditioning has been rewritten to stress progressive resistance exercises and has been provided with new illustrations. In the discussion of knee injuries the former descriptions of the use of an iron shoe have been superseded by the recommendation of a spring resistance device, although the justification for this is not given. A progressive resistance device for ankle strength development is now described and some new exercises have been added for shoulder development. The text is profusely illustrated and contains an index; however, it lacks bibliographic apparatus of any kind. The booklet should prove a practical and useful guide for the novice trainer.

PJR

**Beyond Psychology**, by Otto Rank. (New York: Dover Publications, Inc., 1959. 291 pp. \$1.75.)

This is a Dover "paper back" reprint, unabridged and unaltered from the first edition. In this, the last of Rank's books, written immediately prior to his death, this psychoanalyst presents his interpretation of his accumulated concepts as they relate to social behavior. The title, although confusing, infers that mere psychological interpretation as pre-determined by preferred ideologies does not answer man's search for the re-discovery of his natural self. He pleads for the recognition and acceptance of the irrational element as the most vital part of human life, while stating, "the rational structures that man has built up from time immemorial in religion and art, philosophy and psychology are equally an essential part of human existence." His own statement, "Man is born beyond psychology and he dies beyond it but he can live beyond it only through vital experience of his own—in religious terms, through revelation, conversion or rebirth," forms the basic concept in his presentation. Subjects covered are: Psychology and Social Change, The Double as Immortal Self, The Emergence of the Social Self, The Creation of Personality, Two Kinds of Love, The Creation of the Sexual Self, Feminine Psychology and Masculine Ideology, and Psychology Beyond the Self.

This book should be an interesting addition to the library of the psychiatrist, psychoanalyst, social scientist, and sociologist in that it presents the reactions of one of Sigmund Freud's contemporaries to the frustration inherent in the search for ego-satisfaction. Perhaps it may be considered as a critique of psychoanalytic method; however, in this reviewer's opinion, it is merely the pattern of adjustment of a teacher and scientist to his own inner feelings as related to the fear of death.

DCL

**Mental Retardation**, by Hans Mautner. (New York: Pergamon Press, 1959. 280 pp. \$5.50.)

This book on mental retardation is "a compilation of some lectures given to the staff of the Pineland Hospital and Training Center in Pownall, Me. It does not pretend to be a textbook." The lectures cover 25 subjects, of which the following are typical: accidents, birth trauma, epilepsy, cerebral palsy, kidney diseases, familial oligophrenia. This is a "content" book. It is recommended for the person who is concerned with the care, treatment, and physiological base of mental retardation.

NWF



**The Heart of a Champion**, by Bob Richards. (Westwood, N.J.: Fleming H. Revell Company, 1959. 159 pp. \$2.50)

This is an "inspirational" book consisting of anecdotes from the track career of Bob Richards, told very informally and chosen to illustrate the theme that success in athletics depends upon desire, hard training, and prayer. As with most books of this type, it lacks balance. To say that successful athletes have won after praying certainly does not explain the equally glorious victories of the atheistic Russians, nor the failures of those who prayed and lost. No one will object to praise of athletes who do not smoke, but it should be mentioned that Zatopek, referred to as "the outstanding star of the 1952 Olympic Games" has been observed to halt in the middle of a race for a few drags on a cigarette.

Most of these stories have been told on the radio as part of a current advertising campaign. Track and field enthusiasts who have not heard them will find this book provides a pleasant evening's reading and some behind-the-scenes insights on well-known athletes.

PJR

**A Way of Life and Selected Writings of Sir William Osler**, edited by Alfred White Franklin. (New York: Dover Publications, Inc., 1958. 278 pp. \$1.50).

Probably every corrective therapist knows of William Osler's *Principles and Practice of Medicine*, even though he may never have had occasion to look into it. It is less likely that he is familiar with the author's work as an essayist, historian, and bibliophile. This reprint of a book formerly published under the title *Selected Writings of Sir William Osler* will give the reader an introduction to the thinking of one of the most versatile and accomplished minds of the last generation. The material falls into natural divisions—historical studies of great physicians, letters describing conditions in European hospitals, advice to students, and papers dealing with collecting and maintaining a library.

The student, says Osler, must start with the desire to know as much of the truth as possible, and must be flexible enough to shift his position as new truths emerge or old ones are modified. His view of the truth about medicine contains much to comfort the corrective therapist: as man becomes more enlightened the role of drugs will be recognized as minor in comparison with that of diet, exercise, baths, and frictions.

With the passage of time *Principles and Practice of Medicine* became outmoded, but these essays will survive until the day that the banalities of TV finally wipe all love of good writing and good conversation out of the minds of the English-speaking peoples. To those who will spare the time to enjoy the reflections of a truly great mind and who hope to become educated men rather than trained technicians, this book is heartily recommended.

PJR

**"A Report to California High Schools on the 1959 National Alliance Football Committee Meeting,"** by David P. Snyder. (Berkeley: California Interscholastic Federation. n.d., n.p., mimeographed.)

This is a general report of the 1959 meeting attended by representatives of the National Federation of State High School Athletic Associations, National Junior College Athletic Associations, and National Association of Intercollegiate Athletics. From the standpoint of the corrective therapist, the discussion of injuries and their prevention was probably of greatest interest. It is noted that the manufacturers were prepared to supply soft-covered equipment in an effort to reduce the hazards of body contact. The need for some such measures is apparent from the fact that 12 high school players were killed in 1958. Knee and face and teeth injuries continue to attract special attention, making it evident that the present means of prevention of such traumata are far from satisfactory.

PJR

**"Anatomy of the Human Body,"** by R. D. Lockhart, G. F. Hamilton, and F. W. Fyfe. (Philadelphia: J. B. Lippincott Company, 1959. 697 pp. n.p.)

It is the conviction of the authors of this text that "a little picture is worth a million words." They have, therefore, eliminated much of the verbal detail commonly found in anatomy texts and have substituted carefully labelled illustrations. Some 965 figures, 600 of them employing color, appear in a total of 697 pages, including the index. This may be compared with 1202 illustrations in 1480 pages in *Gray's Anatomy*. The use of this approach is, of course, common in the teaching of surgical anatomy and similar courses; whether it will be more or less successful than the standard texts in more academic courses can be learned only by experience. Comparison of the section on muscles with that in *Gray* shows a considerably smaller amount of attention given to such matters as the origins, insertions, and variations of muscles, but more emphasis on posture, walking, functional results of injury, and other material usually considered kinesiological or pathological in nature. The lavish use of illustrations and the emphasis upon function are, in part, frankly designed to appeal to therapists and the physical educators, among others.

The text contains two columns to a page, which some readers find objectionable, and the type size is uncomfortably small for long periods of study. Even worse, on some pages, particularly in the section on The Nervous System, the captions and the text are so jumbled that it is difficult to tell which is which. It is safe to predict that the student will be most unhappy over this format. Spreading the material over a few more pages would certainly have achieved greater clarity. The bibliography is surprisingly short and consists largely of references to British books. The index appears both adequate and conveniently arranged for reference purposes.

It is extremely difficult for a reviewer to give a forthright opinion on the value of this text for any given purpose. It differs in its approach from *Gray* or *Cunningham* with which most of us became familiar during our student days and its use will necessitate corresponding modifications in the didactic presentation. It justifies the careful consideration on the part of any instructor interested in adopting a new text.

PJR

**"Dynamic Anthropometry,"** Roy Waldo Miner, editor. *Annals of the New York Academy of Sciences*, 63:433-636. (New York: The New York Academy of Sciences, 1955. Paper. \$3.50.)

Both friends and foes of corrective therapy have pointed out the necessity for the members of the group to perform research of satisfactory caliber if they are to be accepted as having professional status. Certain basic areas appear especially appropriate for research by corrective therapists—kinesiology, body mechanics, physiology of activity, and anthropometry. Those interested in working in anthropometry might well start by reading this report of a Conference on Dynamic Anthropometry held April 16 and 16, 1955 by the Section of Biology of The New York Academy of Sciences.

"The great problem," states Count, "is to determine where the population is heading; what lasting biological effects the environment imposes upon the man." Some of the papers, such as Richards' analysis of mathematical transformation and Rashevsky's study of the determination of form by function, would make rather technical reading for those without professional training in the field. Others, such as Brozek's study of body composition, Elftman's paper on body dynamics, and Dempster's article on the anthropometry of body action, would be of immediate interest to the corrective therapist and would suggest numerous areas in which appropriate research might be undertaken. Even for those having simply a general interest in body mechanics this volume would be found to contain a lot of very interesting reading. It is definitely recommended.

PJR

**"Changing Concepts and Practices in Psychiatric Occupational Therapy,"** edited by Wilma L. West. (New York: American Occupational Association, 1959. 248 pp. \$1.50)

These are the proceedings of the Allenberry Workshop Conference on Function and Preparation of the Psychiatric Occupational Therapist, held at Allenberry Inn, Boiling Springs, Pennsylvania, November 13-19, 1956, under a joint grant from the National Institute of Mental Health, National Institutes of Health, Public Health Service, and Department of Health, Education and Welfare. The Conference covers three sections. The first section surveys the techniques and procedures used in the activity and treatment program for psychiatric patients with specific reference to occupational therapy. The conferees recognized that any formalized occupational therapy procedure is effective only in proportion to the amount of psychotherapeutic activity which is allowed over and beyond the fringe benefits of the activities themselves. The preparation of the worker, particularly as relates to the insight of the therapist toward self and patient, is emphasized and is the major integrated concept behind the entire Workshop. In the second section the function of the psychiatric occupational therapist is examined. The importance of the therapist's use of "self" as a psychotherapeutic tool, use of groups and group technique, use of activities, and the specific role of the therapist as relates to supplementing psychotherapy and contributing to psychodynamic formulations of the therapist's personality, and its effect upon the social and skill evaluations of the patient is considered. The concluding section investigates the educational and clinical preparation of the psychiatric occupational therapist and the necessity of expanding the basic framework as relates to the psychopathology and psychodynamics responsible for psychiatric illness.

In this reviewer's opinion, the recognition by the occupational therapists of their weakness in understanding the psychodynamics related to abnormal behavior points up the major achievement of this Conference. Group insight resulting from this meeting may lead to an improved educational program with additional academic, clinical and postgraduate education for the therapist now in practice, and point out some of the future goals toward which psychiatric occupational therapy may be aimed. This book is well written and problems inherent in the therapist-patient interpersonal relationships are adequately reported and evaluated.

DCL

**"Loathsome Women,"** by Leopold Stein, with Martha Alexander. (New York: McGraw-Hill Book Company, Inc., 1959. 243 pp. \$4.50)

This is the story of the analyses of four types of women, each presented as a single individual: Judith, the domineering; Sybil, the proud; Daphne, the promiscuous, and Dora, the fearful. In spite of outward differences, the analyst found that all were characterized by a common subconscious factor. To prevent its manifestations from becoming overt all resorted to quasi-magical devices. The analyst was struck by the fact that all exhibited characteristics commonly attributed to witches. His attempts to understand their problems led him to a study of witchcraft and mythology.

The author learned that ideas of witches came to the fore whenever the males attempted to reduce women to a status of inferiority—an attempt which was strongly accelerated by the introduction of Christianity. Persecution of witches reached its height during attempts to suppress all dissent in a community and during times of insecurity, when the need for scapegoats became evident. As might be expected, the author eventually determined that his patients were ridden by a devil—the fear of sexual gratification, and each projected this devil upon the men in her life, thus becoming witches, enslaved by the power of their devil.

The thesis is interesting, but serious consideration of its merits would require a scholarly study. The book suffers from an apparent attempt to reach the mass audience. It is

more likely to be found on the shelves of the neighborhood lending library than in the professional libraries of the readers of this *Journal*. It is to be hoped that Dr. Stein will undertake the presentation of a more formal discussion of his theory.

PJR

**"A Primer of Water, Electrolyte and Acid-Base Syndromes,"** by Emanuel Goldberger. (Philadelphia: Lea & Febiger, 1959. 322 pp. \$6.00).

A book which will provide a ready reference, as well as the basis for understanding the physiology and pathophysiology, for the practitioner, rather than the chemist or mathematician, in the important area of water, electrolyte, and acid-base disturbances is an important contribution to the literature, and one which is the stated purpose of this small text.

Thirty-two chapters, divided into five parts, cover in a clear and concise fashion the extra-cellular water and syndromes associated with water, sodium, and acid-base disturbances, culminating in a chapter on the principles of fluid therapy. The text is clinical in its approach, and contains many practical points, such as the approach to diagnosing acidosis and alkalosis in terms of pH and CO<sub>2</sub> content, and the relationship between CO<sub>2</sub> content and CO<sub>2</sub> capacity, and how this method leads to a diagnosis of metabolic or respiration acidosis or alkalosis.

In spite of the fact that there are already a number of books in this area, this text should find a place among the most usable.

MLB

**"An Experiment in Mental Patient Rehabilitation,"** by Henry J. Meyer and Edgar F. Borgatta. (New York: Russell Page Foundation, 1959. 107 pp. \$2.50.)

This is a report of research conducted at Altro Health and Rehabilitation Services, Inc. with the support of the Sage Foundation. Objectives of the research were an evaluation of studies in a social welfare setting according to a "control group design" as related to a rehabilitation program for mentally ill patients. Documentation includes material from the psychiatric service, social case work, vocational counselling, and nursing. A simple psychological test battery was administered to all new clients (primarily those in the rehabilitation workshop) at two weeks, three months, and at time of release. In addition supervisors periodically rated all new clients. Those conducting the research were aware of the need for developing a sensitive and valid criteria of successful rehabilitation. The discussion of problems relative to conducting the evaluative research and an analysis of data comprise the contents of this interesting and provocative study of rehabilitation in post-hospitalized mental patients.

The above research project adequately appraised one of the more important areas in the treatment of the mentally ill, the rehabilitation of the "released" mental hospital patient. In these areas we have no known methods—follow-up in the past has been inadequate, and it is worth noting that the Altro project is an example of practical research related to a definite clinical problem. In this study the "trials and tribulations" of patient, therapist, and research team are honestly presented. Conclusions regarding data on population and treatment group may provide a partial resolution of the problem of the rehabilitation of the "released" mental patient. Included in the report are 23 tables comparing the survey and the Altro samples, a statistical evaluation of the study, and an adequate index.

DCL

#### BOOKS RECEIVED

**Report of the Medical Director of The Seton Psychiatric Institute, Baltimore.**

1957-1958 report.

**Manual for Nutrition Surveys.** (Washington, D.C.: Superintendent of Documents, Government Printing Office, 1957. 160 pp. \$1.50.)

An excellent guide for the collection of data on the nutritional status of a population.

**Medicos en la Sierra Maestra,** by Julio Martinez Paez. (La Habana: Ministerio de Salubridad y Asistencia Social, 1959. 72 pp. Paper.)

Subtitled "Historical Sketches," this is an account of the deeds of the physicians who cast their lot with Fidel Castro during the recent revolution in Cuba. The booklet is illustrated with photographs of many of the individuals concerned. The text is in Spanish.

**Some Widely Publicized Western Police Officers,** by Nyle H. Miller. (Reprinted from "Nebraska History," December, 1958. 14 pp. Paper.)

A devastating comparison of Wyatt Earp *et al.*, as they actually were with the way in which they are presented by those who pervert history for TV.

**Japanese Ink-Painting,** by Ryukyu Saito. (Rutland: Charles E. Tuttle Co., 1959. 96 pp. \$3.75.)

These "Lessons in Suiboku Technique" might be of interest to occupational therapists but are outside of the area of the corrective therapist.

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## DR. MUSSER HEADS VA MEDICAL RESEARCH

Veterans Administration has announced appointment of Dr. Marc J. Musser, director of professional services at the Houston, Tex., Veterans Administration hospital, as director of medical research for the agency. In his new position in Washington, D.C., Dr. Musser will coordinate a nationwide program of some 6,000 individual and cooperative studies, with major categories in cancer, heart and blood vessel disease, mental illness, aging, tuberculosis, atomic medicine, and dental research.

Professor of medicine at Baylor University College of Medicine in addition to his VA duties in Houston, Dr. Musser was on the teaching staff of the medical school of the University of Wisconsin at Madison from 1938 until his appointment to the Houston VA hospital staff in 1957.



IN MEMORIAM  
C. H. McCloy (1885-1959)

It is with deep regret that we note the passing on Sept. 17 of a great leader in the field of physical education, a contributing editor of this *Journal*, and both honorary and advisory board member of the Association for Physical and Mental Rehabilitation. As research professor of physical education at the State University of Iowa from 1930-1954, and later as research professor emeritus, Dr. McCloy won international fame for his scientific inquiries into the field of physical education. He was a zealous advocate of physical fitness and defended this objective of physical education throughout his career despite the fact that until recently most of his colleagues had virtually abandoned it for more complex ideals. The author of nearly fifty books on health, physical education and athletics and hundreds of articles, Dr. McCloy's published work was frequently reprinted in European, Asiatic and in Latin American countries. From long service as a YMCA secretary in China, he spoke the Chinese language fluently and could read French, Japanese, Italian, Portuguese, German and the Scandinavian languages which gave him an opportunity to study physical education on a world basis few others could enjoy.

Dr. McCloy earned the Ph.B. and M.A. degrees at Marietta (Ohio) College and his Ph.D. at Columbia. His long career began in China from 1913-1926. During the last five years of his stay in the Orient, he served as director of physical education at National Southeastern University in Nanking. Before joining the faculty at State University of Iowa, he taught at De-

troit Teachers College, Columbia University, and was a research secretary in physical education for the National YMCA Council in New York.

During World War II, Dr. McCloy served as consultant in physical reconditioning to the U.S. Army and helped to prepare the physical fitness manual used by both the Army and Air Force. He was chairman of the civilian advisory committee for the Navy's physical fitness program and consultant to the joint Army and Navy committee on welfare and recreation. In 1946, he served on Gen. MacArthur's education mission to Japan and frequently aided South American governments to develop national physical education programs.

Among the many honors awarded to Dr. McCloy were the Hetherington award of the American Academy of Physical Education for distinguished service to the field; a centennial award from Michigan State University "in recognition of distinguished services which have contributed to the benefit of mankind"; an award for outstanding service from the American College of Sports Medicine; and honorary doctoral degrees from the University of Ottawa and Grinnell College. Dr. McCloy was a past president of the American Association for Health, Physical Education and Recreation and the Pan-American Institute of Physical Education.

He is survived by his wife, the former Anna Florence Fisher, three sons, two daughters and 12 grandchildren.

**C.T. POSITION VACANCIES**

Two position vacancies in corrective therapy are reported by Robert L. Davis, Chairman of APMR's recruitment and placement committee. A GS-7 vacancy is listed at the V.A. Center, Wood, Wisc., and a GS-5 vacancy exists at V.A. Hospital, Tomah, Wisc.

Any qualified therapist interested in either of these positions should contact the Personnel Officer or Chief, Corrective Therapy, at the respective hospital.

**COMPUTER AIDS CARDIAC RESEARCH**

Successful use of electronic data computing for study of heart disease, as developed by a Veterans Administration-National Bureau of Standards research team has been demonstrated at an international medical meeting sponsored by the VA in Washington, D.C. Electrical impulses from the heart are recorded, converted to a numerical system, and fed into an electronic computer, which is set up to provide the physician with quantitative data on major characteristics of the heart.

The method was developed by a group of computer specialists of the Data Processing Systems Division of the National Bureau of Standards—Leonard Taback, Ethel Marden, and H. L. Mason—in cooperation with Dr. Hubert V. Pipberger and Dr. Edward D. Freis of the Washington, D.C., VA hospital.

It appears to provide more complete information than has been available from the electrocardiogram, and also to be economically feasible for wide use, the developers believe.

Later, it is hoped the equipment may be modified for use in making numerical studies of blood pressure fluctuations, heart sounds, and other body functions.

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## Chapter Activities

### California Chapter

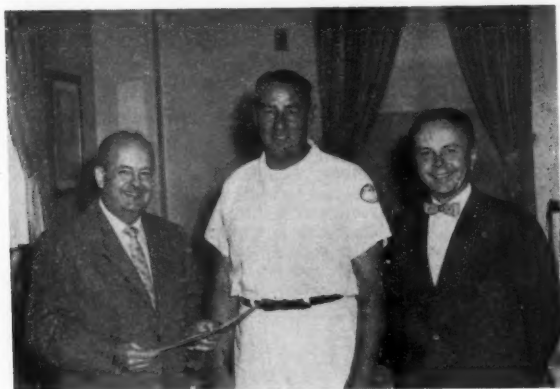
An awards dinner was held at the Lafayette Hotel, Long Beach, on Oct. 16. Local and national awards were presented by local chapters of APMR and the American Association of Rehabilitation Therapists.

Chairman Rudy Jahn presented Dr. Carl H. Young of the U.C.L.A. faculty a certificate for his outstanding contributions to the advancement of professional standards for APMR.

James Nold received the national achievement award "for outstanding accomplishment in his own rehabilitation." This award was made by Dr. George Hohman, who won the honor in 1958. Mr. Nold, a West Point graduate, sustained head injuries as a paratrooper in Korea, resulting in aphasia and a right hemiplegia. He was hospitalized at the Long Beach VAH for rehabilitation and later furthered his education at Long Beach State College. He is now employed by a local electronics company.

Herbert Read, president of the California Chapter, AART, presented awards to several members of that group for contributions in rehabilitation.

## News and Comments



**WALTER A. WALKORD RECEIVES V.A. AWARDS**

Walter A. Walkord, Chief, Corrective Therapy, Veterans Administration Hospital, American Lake, Washington, is shown with Joseph C. Tatum, M.D., Manager (left) and Floyd E. Scott, M.D., Chief, Physical Medicine and Rehabilitation Service (right). For his contribution in the development and construction of a hospital golf course, Mr. Walkord received both the Manager's Official Letter of Commendation and the Superior Performance Award.

### STUDY POINTS TO PROTEIN LACK IN OLDSTERS' DIET

People over 50 have a tendency to select diets low in essential protein needed to maintain health and vigor, Veterans Administration research indicates. Older people apparently have a greater requirement for the essential amino acids, protein constituents found largely in eggs,

meat, and milk, than do younger people, said Dr. Stewart G. Tuttle, spokesman for a research team at the Los Angeles, Calif., VA center. Yet the team's study indicates people over 50 tend to select diets that are low in these essential amino acids, Dr. Tuttle said.

The group now is investigating the possibility of a relationship between this sort of diet and degenerative processes in persons over 50.

"Our study suggests that lack of the essential amino acids may cause a nutritional imbalance in older people that makes them more susceptible to development of degenerative diseases and speeds the aging process," Dr. Tuttle said.

Dr. Tuttle said some of the reasons for oldsters' inadequate diets may be: (1) Physical inactivity and loss of independence; (2) Loss of teeth or need of dental care; (3) Lack of knowledge of how to manage limited funds to secure good nutrition; (4) Fixed food likes and dislikes, often acquired in youth; and (5) Emotional and psychological difficulties.

### BLOOD PRESSURE LOWERED IN CLINICAL TESTS OF NEW DRUG

Successful results in clinical trial of a new drug for lowering high blood pressure have been reported by the Veterans Administration. Doctors administering the drug, guanethidine, to patients at two VA hospitals said it had a potent effect in reducing high blood pressure, similar to the effects of ganglionic-blocking drugs now in use against this disease, but did not produce the undesirable reactions that these drugs do.

Dr. Edward D. Freis of the Washington, D.C., VA hospital and his co-researcher, Dr. Edward D. Frohlich of Georgetown University School of Medicine, said 15 patients of the Washington VA hospital received a daily dose of guanethidine by mouth for periods varying from four to nine weeks. Dr. David W. Richardson and Dr. Eugene M. Wyso of the Richmond, Va., VA hospital said 25 patients with high blood pressure there received the drug daily by mouth, in pill form, over a period of four and a half months.

Dr. Freis and Dr. Frohlich noted some undesirable effects of guanethidine, including diarrhea. However, no case was considered serious and the diarrhea was readily controlled by medication.

The Richmond VA hospital team said the only possibly harmful effects of guanethidine were those that could be expected from lowering of blood pressure—chiefly dizziness while the patient is standing.

Dr. Freis and Dr. Frohlich said their findings suggest guanethidine probably is suitable for patients with severe and resistant high blood pressure which does not respond satisfactorily to use of another drug, chlorothiazide, or to chlorothiazide in combination with small doses of two other drugs, hydralazine and reserpine.

### DATA PROCESSING SEEKS CLUES TO SOME DISEASES

Information to aid research on multiple sclerosis and other diseases will be provided by a new Veterans Administration research division in Washington, D.C., the agency has announced. The new geographic epidemiology division, just established in the Research Service of the VA Department of Medicine and Surgery, will use data-reporting systems of the agency's 170 hospitals to compile information on geographical and occupational distribution of little-understood diseases.

The VA projects will be unique in that nowhere else are available the extensive medical records of the sort needed for such research on a major scale. The division is expected to furnish much valuable information not otherwise available, since the VA's hospitals can supply data in volume, on a nationwide basis, and in a standard way.

Heading the division is Dr. Donald Acheson, an exchange visitor to this country. Dr. Acheson is the Radcliffe traveling Fellow of University College, Oxford, England. In addition to multiple sclerosis, ulcerative colitis and regional enteritis are under immediate study.

## VA INSTALLS ATOMIC REACTOR FOR MEDICAL RESEARCH

An atomic reactor, believed to be the largest ever installed in a hospital and one of the first designed specifically for medical purposes, has been placed in operation at the Veterans Administration hospital in Omaha, Neb. Dr. W. Edward Chamberlain, who heads the VA's atomic medicine program in Washington, D.C., said the reactor opens new doors for patient care, research, and education and training for the agency.

The reactor is housed in a vertical concrete tube 22 feet deep and 6½ feet in diameter, sunk into the ground beneath the Omaha VA hospital. Nestled in this shaft, it "swims" in 4,750 gallons of highly purified water—triple-distilled to remove solid particles that would lessen the water's effectiveness as shielding against escape of radioactivity.

A unique built-in safety design completely eliminates any danger of an atomic explosion. The fuel rods are of a material that stops the nuclear reaction when it begins to get hot.

What will the reactor do?

Theoretically it may simplify performance of many of the blood, liver, muscle and other tests that hospitals now perform by tedious and time-consuming chemical methods. The specimen to be analyzed is placed in the reactor where it becomes radioactive. The radiation from it then is detected by a 100-channel energy-level analyzer, which produces a graph indicating the chemical makeup.

Dr. Richard E. Ogborn, chief of the Omaha VA hospital's radioisotope service, said this application to care of patients should be invaluable. For example, doctors have found that the blood level of zinc decreases markedly immediately after a heart attack. The electrocardiogram does not always enable doctors to differentiate at an early stage between heart attack and some other condition, such as a gastrointestinal upset.

The reactor will enable VA doctors to delve into previously inaccessible areas of medical and biological research.

Studies into the essence of human growth—how food is converted into energy, muscle, and bone—will be possible.

By producing radioisotopes, the reactor will enable the VA to substantially increase its use of these for medical treatment and research, Dr. Ogborn said.

## VA CITES MEDICAL TRAINING RECORD

About one third of the approximately 7,000 new physicians being produced by the United States yearly receive training in Veterans Administration hospitals, Summer G. Whittier, Administrator of Veterans Affairs, has reported. Mr. Whittier said medical training is conducted in VA hospitals primarily for its effect in raising the quality of care furnished veteran-patients, and in helping to recruit scarce category personnel for the hospital staffs. However, the agency's medical education programs also provide training at low cost to the taxpayer and are an important clinical teaching facility for colleges and universities, he said.

The programs are making a major contribution of physicians and other personnel to the trained medical manpower pool of the nation, especially in fields such as psychiatry, clinical psychology, nursing, social work, and the rehabilitation therapies, in which personnel are in critically short supply, Mr. Whittier said.

Dr. Benjamin B. Wells, Director of the education service of the VA Department of Medicine and Surgery in Washington, D.C., added that VA hospitals had in training during 1958, in cooperation with colleges and universities throughout the country:

- 6,000 medical students—about 39 percent of the nation's third-year medical students and about 33 percent of its fourth-year medical students.

- About 2,500 physicians becoming medical specialists as residents in psychiatry, general surgery, internal medicine, and 16 other fields. This is 11 percent of the nation's physicians in training as medical specialists during 1958.

- 70 dental interns and residents, or about 15 percent of the nation's dental interns and residents during 1958.

- 2,900 student nurses, or about 10 percent of the student nurses graduated from the nation's schools of nursing in 1958.

- Some 700 psychology trainees. This number represents 20 percent of the total graduate training in clinical and counseling psychology conducted during 1958 in affiliation with the 54 universities approved by the Education and Training Board of the American Psychological Association.

- 281 occupational therapy trainees, or 59 percent of the nation's occupational therapy students graduated during 1958, and 430 physical therapy trainees, or 55 percent of the nation's physical therapy students graduated during 1958.

- 329 social work trainees, or 19 percent of the nation's 1958 graduates in social work.

- 85 dietetic interns and some 100 trainees in medical administration, pharmacy, audiology and speech correction, and other specialties contributing to medical care.

Dr. Wells said students training in VA hospitals are drawn from 72 medical schools, 38 dental schools, and 119 schools of nursing with which VA is affiliated and from divisions of many other cooperating colleges and universities.

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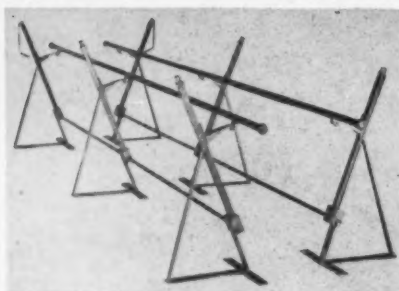
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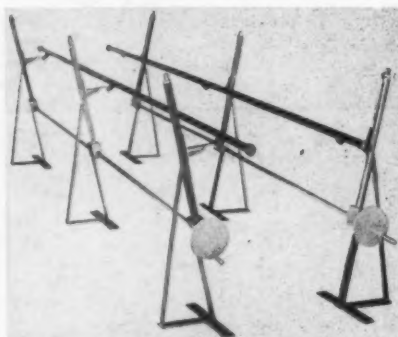
# La Berne PARALLEL BARS



MODEL 101 AD

12° angle requires 15" floor space. Each section adjustable in height from 17" to 44". Width adjustment 18" between high and low positions. Operated by folding handle.

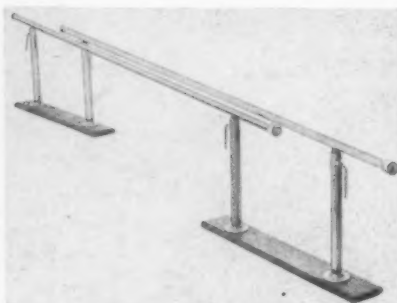
10-12 ft.	\$295.00
14-16-20 ft.	395.00



Model 301 W—10°

Requires 12" floor space. Each section adjustable in height from 22" to 44". Width adjustment 14" between high and low positions. Operated by counter-balanced handle.

10-12 feet	\$295.00
14-16-20 feet	\$395.00



PORTABLE PARALLEL BARS—No pins to insert adjustable by hand crank through worm and gear.

Bars mounted on platform fitted with 2 sets handrails adjustable in height from 16" to 40" by hand crank. Distance between rails is 24" for upper rails, 19" for lower rails. Platform has slight incline at each end fitted with detachable abduction board. Platform finished in natural wood, handrails finished in Atactic bronze.

Bars require only one person to adjust and may be adjusted by patient from wheelchair. NO PINS to INSERT—worm gears automatically lock bars from moving up or down at any stopped position. Model 175—10 ft. bars \$350.00 Upper handrails available in hardwood, no extra cost when specified with order.

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TELESCOPIC MODEL (404)

Mounted on platform. Telescopic height adjustment from 22" to 38". Platform has slight incline at each end, detachable abduction board, platform finished in natural wood. Handrails are hardwood, natural finish. Uprights Mellotone grey.

MODEL 404, 10 feet	\$175.00
MODEL 410 (as above with 2 pair handrails)	\$195.00

PORTABLE FOLDING PARALLEL BARS (Model 4400-P)  
Telescopic height adjustment from 21" to 38". Requires only 8" floor space when not in use. \$98.50

**La Berne MANUFACTURING COMPANY**

PO Box 5245 Columbia, S. C. Phone SU 7-6162



Originators of the "WALK-OFF" Physical Therapy table



